

GERMANY'S INTERESTS IN THE ARCTIC, AS EXEMPLIFIED BY ITS ARCTIC
COUNCIL ENGAGEMENT

By

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Abstract

This thesis is a qualitative research exercise, which tests the explanatory value of the international relations theory of neoliberal institutionalism in explaining Germany's engagement in the Arctic and in the Arctic Council. The research question further attempts to clarify Germany's economic and environmental interests pursued through its engagement with the AC.

This thesis analyzes Germany's engagement in the Arctic from a historical point of view up to Germany's contemporary interests. Germany's first Arctic engagement started with the period of whaling, continued through the age of polar heroes, up to the weather war of World War II. After the two World Wars, Germany struggled to restart its Arctic engagement, but nowadays enjoys a high reputation as an Arctic player. This is due to the well-known German polar research institute, the Alfred Wegener Institut Helholtz-Zentrum für Polar- und Meeresforschung, but also due to Germany's engagement in the Arctic Council. As a result of Germany's long history of polar, especially Arctic endeavors, the country became an Observer in the Arctic Council at its founding. As global warming has caused significant melting in the Arctic, Germany's interest has shifted from environmental concerns in the region to a dual emphasis of protecting the environment while pursuing economic opportunities. Today Germany pursues several interests in the Arctic, including economic, political, and environmental interests. Neoliberal institutionalism argues that cooperation can emerge through mutual trust and the building of norms, regimes and institutions. Realism on the other hand emphasizes security competition among great powers within anarchy of the international system, with the main aim to survive. The results of the analysis suggest that the theory of neoliberal institutionalism has better explanatory power for interpreting Germany's motivations for engaging in the Arctic Council than the theory of realism.

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List of Abbreviations

AC	Arctic Council
AEPS	Arctic Environmental Protection Strategy
AMAP	Arctic Monitoring and Assessment Programme
AWI	Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung
BGR	Bundesanstalt für Geowissenschaften und Rohstoffe
EU	European Union
FRG	Federal Republic of Germany
GDR	German Democratic Republic
IPY	International Polar Year
IASC	International Arctic Science Committee
IR	International Relations
NATO	North Atlantic Treaty Organization
NWP	North West Passage
NSR	Northern Sea Route
PAME	Protection of the Arctic Marine Environment (working group)
SAO	Senior Arctic Official
SDWG	Sustainable Development Working Group
UK	United Kingdom
UNCLOS	United Nations Convention on the Law of the Sea
USA	United States of America
USSR	Union of Soviet Socialist Republics
WFS	Weather buoy
WW	World War

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infected me with the “travel bug,” which eventually brought me to the Arctic, whence my passion for the region began.

Chapter 1 Introduction

In recent years the Arctic has transitioned from being a remote area to a region of global relevance and significance. The coverage of sea ice and permafrost has been decreasing rapidly in the past decades due to climate change. The warming Arctic not only presents economic opportunities in the form of newly accessible oil and natural gas stores, but it also opens up new sea lanes through the Arctic Ocean. Although the Arctic was a highly militarized zone during World War II and especially during the Cold War, much of the world considered it a political and economic backwater. Recently, owing to global warming, the Arctic has been transformed into an area of intense global interest, regarding issues such as resource development, growing concern about the effects of climate change in the region, as well as boundary and sovereignty disputes. Consequently, the high North currently holds many challenges and opportunities in geopolitical, environmental, economic, and social spheres.

International cooperation in the Arctic started to increase in the late 1980s when Mikhail Gorbachev made his famous speech in Murmansk calling for more cooperation in the region instead of confrontation. As the region gained international attention, interest increased in a system of governance for the Arctic. The regional body - the Arctic Council (AC) - was founded in 1996 with a mandate to “provide a means for promoting cooperation, coordination and interaction among the Arctic states, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic.”¹ Furthermore the Arctic states agreed upon solving any disputes in the region peacefully. The AC is a high-level intergovernmental

¹ Arctic Council, “Declaration on the Establishment of the Arctic Council.” (Ottawa, Canada, 1996): Article 1, accessed July 23, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/85/EDOCS-1752-v2-ACMMCA00_Ottawa_1996_Founding_Declaration.PDF?sequence=5&isAllowed=y.

forum wherein the eight Arctic states collaborate on Arctic issues, in particular, concerns of sustainable development and environmental protection in the Arctic. Today the AC addresses some of the most urgent concerns of the region and strives to provide effective responses and solutions to these new challenges. The Arctic states have acknowledged the need for collaboration by agreeing upon using the AC as the main cooperative body for Arctic interstate cooperation and as the main legal framework within which to work.² Therefore the political development in the Arctic is now characterized by more than two decades of interstate cooperation, absence of war and adherence to international law.³

The changing Arctic and the numerous global impacts of conditions and forces within the Arctic region have increased the interest of various actors from outside the region in becoming involved in Arctic affairs. Although final decision making remains with the eight Arctic states, increasing engagement by non-Arctic states and non-state actors as Observers exemplifies a shift in AC governance towards more cooperation and enhanced co-production of knowledge. Thirteen non-Arctic states, thirteen intergovernmental and thirteen non-governmental organizations currently participate as Observers in the AC. The strategies and actions of the Arctic states and the policies and guidelines of the non-Arctic states illustrate the complex interaction among these international actors in the Arctic.

Attention to the Arctic is increasing more broadly in international relations, as well. On the one hand, various actors raise fears with a “race for resources” or an “Arctic scramble,” since global warming has revealed new opportunities for trade routes and natural resource development. The adjacent coastal waters of the Arctic are territories of states, with unsettled disputes over the

² Arctic Council, “Ilulissat Declaration.” (Ilulissat, Greenland, 2008), accessed March 5, 2018, <https://cil.nus.edu.sg/wp-content/uploads/2017/07/2008-Ilulissat-Declaration.pdf>.

³ Njord Wegge, “The Political order in the Arctic: power structures, regimes and influence,” *Polar Record* 47, no. 241 (2011): 167.

extent of continental shelves, as well as questions regarding jurisdiction over new sea routes. On the other hand, there is evidence of increasing cooperation in the region. For instance, bilateral relations, especially in trade and research, have expanded in the past two decades. While the international community does not interfere with the eight sovereign Arctic states, the non-Arctic Observer countries have displayed a keen interest in the Arctic for decades now, and have slowly developed their own identities, economic abilities and diplomatic connections in the Arctic.⁴ Recognizing the interests they share, the eight Arctic states and the non-Arctic states are calling for more cooperation, effective strategies and international frameworks, as comprehension of the global impacts of climate change have increased.

Political scientist Oran Young stresses that cooperation and collaborative governance are needed in the Arctic due to the opportunities and threats that climate change present to a region lacking a strong institutional framework.⁵ Issues such as environmental protection, sustainable development of maritime resources and animals, and the concerns of the indigenous population are more relevant than ever. Therefore, the region is expected to generate great opportunities and various challenges ranging from increased access to energy, shipping and fishing grounds, to environmental and military threats. Hence the Arctic region increasingly is recognized as a region of international interest.

The causes and consequences of climate change, which are so clearly global, open up existing governance arrangements in the circumpolar North to non-Arctic states seeking active participation in the region. These non-Arctic states, such as China, Italy, the Republic of Korea, and Germany, try to position themselves as legitimate Arctic players, emphasizing the global

⁴ Heather Exner-Pirot, Lassi Heininen, and Joël Plouffe, "Change and Innovation in the Arctic. Introduction," *Arctic Yearbook* (2013).

⁵ Oran R. Young, "Arctic Governance - Pathways to the Future," *Arctic Review on Law and Politics* 1, no. 2 (2010): 174.

rather than the regional implications of melting sea ice and resulting social and environmental problems. Arctic issues, especially environmental protection, pose collective action problems, which can only be solved by multilateral collaboration and cooperation, based on common shared information and data monitoring, including joint research projects. Germany has been an Observer since the AC's inception, and displays an active interest in the region and institution.

1.1. Germany

1.1.1. General Background

This thesis explores Germany's role as an official Observer to the Arctic Council (AC). When looking back at Germany's foreign policy since World War II, Hans Kundani, a research fellow at the Royal Institute of International Affairs in London, who has written much on Germany's economic power within Europe, describes Germany as a civilian power, that is, "one that, unlike a great power, uses multilateral institutions and economic cooperation to achieve its foreign-policy goals, avoids the use of military force except in limited circumstances and in a multilateral context, and thus helps to civilize international relations by strengthening international norms."⁶ After WWII Germany was forced to make territorial concessions and the country was divided into two states; meanwhile each state undertook its own foreign policy, shaped by the ideological ideas and strategic interests of the Cold War era.⁷

Former Chancellor of the FRG Helmut Kohl stood among the initiators of European integration, which began in 1950. Thus, West Germany was an original driver of the European Union, along with some other Western European states – France, Italy, and the Benelux states, and it has

⁶ Hans Kundani, "Germany as a Geo-Economic Power," *The Washington Quarterly* 34, no. 3 (2011): 32.

⁷ Kundani, "Germany as a Geo-Economic Power," 33.

been very active since. Today Germany and France are the driving forces behind the European Union, in a process that has included the creation of a single market, economic and monetary Union, and the beginnings of a joint European foreign policy.

Germany's current chancellor, Angela Merkel, has been nicknamed "Climate Chancellor" for her long-standing international engagement in reducing carbon emissions. As Merkel started in her fourth term in 2017, doubts have risen as to whether she can live up to that reputation, owing to her new government's decision to postpone the national 2020 climate targets and Germany's lack of recent progress in cutting greenhouse gas emissions. Yet Germany continues to seek influence within multilateral institutions. Germany will take a seat in the UN Security Council in 2019.

Due to its economic strength, Germany has become a global player in the last decades, a role it exercises, for example, through its membership in the G8 group of leading economies of the world. Germany's strong economy elevates its status and influence and affords a certain independence in its decision making. Germany is the most populated and most economically powerful European country, and has strong economic, social, and political ties with all its European neighbors. Germany's economic power depends on close cooperation with its European neighbors and the European Union itself, which both enhances and confines the country's capability to be a foreign policy actor. Today the European Union struggles more than ever, as it addresses challenging new issues, such as the refugee crisis, Brexit, and financial crises within member states.

1.1.2. Arctic Background

Germany's political-economic engagement in the Arctic region is rather new and has been renewed through the German Arctic Policy Guidelines published in 2013, acknowledging the increasing strategic importance of the region. These Policy Guidelines cover climate change, environmental protection, and polar research, but more explicitly they cover geo-economic opportunities in the Arctic. The Arctic attracts Germany through its immense hydrocarbon reserves and new shipping routes developing due to melting sea ice. The main driving force behind Germany's renewed interest in the region seems to be the opportunities and challenges deriving from the changes underway in the region.

Germany does not have direct access to the coast or waters of the Arctic region and therefore does not possess any legal rights to the development of the Arctic continental shelf. Nevertheless, Germany has engaged in polar research for well over a century and can reflect on a long polar history. In the sixteenth and seventeenth centuries, the famous German cartographer August Petermann laid the foundation for German polar research that took place 150 years ago during the age of exploration in the Arctic. Germany's Arctic interest continued into the twentieth century with the age of polar heroes, driven by fascination and the urge for exploration and discovery, but mostly pursuit of research in the natural sciences. After WWII, Germany lost its military power, and its nationalism died, so there was a need to develop a new role in international Arctic policies. Germany did so by emphasizing economic cooperation, foreign exploration and scientific collaboration as well as diplomatic connections and bi- and multi-lateral treaties. Germany has been committed in various ways to providing the international community with relevant data to gain an understanding of the climate system as well as with analysis of future developments of the polar region.

Germany is a long-standing permanent Observer in the AC, has close relationships with all Arctic states, and is in economic terms closely connected to many countries in the region (especially Norway and Russia). For many decades Germany has seen the Arctic primarily as a region of global climate change developments. Therefore, other actors have viewed Germany only as an Arctic stakeholder in terms of polar research and in the context of its leadership role in efforts to mitigate climate change. Only in late 2013 did the German government officially become more interested in the region, by publishing its Arctic Policy Guidelines, entitled “Assume Responsibility, Seize Opportunities.” Consequently, Germany’s Arctic activities shifted to include economic interests, as well. As an Observer in the AC Germany has always advocated cooperation in research in order to analyze the drivers and consequences of climate change.

This thesis investigates Germany’s historical and current interests in the Arctic. It considers Germany’s expeditions in and research on the Arctic from the beginning of the seventeenth century with the era of whale hunting, to the present, with special focus on Germany’s role as an Observer in the AC. For centuries, Germany, although a non-Arctic country, has been actively engaged in Arctic exploration and research, and its participation as an Observer in the Arctic Environmental Protection Strategy (AEPS) and the AC is an outgrowth of this history. Furthermore, the thesis investigates Germany’s behavior in the Arctic and analyses whether it aligns with the theory of neoliberal institutionalism and whether therefore Germany exerts soft power and influences the region.

1.2. Thesis Structure

The thesis is structured in five chapters. Following the introductory Chapter, which provides a general overview of Germany's political and Arctic background, Chapter Two introduces the topic of my thesis, states the problem and presents the research question. This second chapter builds the theoretical framework used in the thesis to support the findings. I introduce the international relations theory of neoliberal institutionalism. In this second Chapter I further elaborate on my research methods, clarifying my qualitative and historical data analysis. Chapter Three relates and analyzes Germany's historic interest in the Arctic from the seventeenth century to WWII. This chapter is followed by a comprehensive overview of Germany's contemporary interests in the Arctic. Today's interests are divided into several subchapters, such as resources, shipping, economic, environmental and political interests. Chapter Five analyzes the data through the lens of neoliberal institutionalism, to determine whether this theory can explain Germany's engagement in the Arctic through its Observer status in the Arctic Council. The Summary and Conclusion chapter concludes this chapter.

Chapter 2 Theoretical Framework

2.1. Introduction of neoliberalism theory

One of the most dominant and widely used theories to analyze international relations is liberalism. This thesis uses neoliberal institutionalism to analyze and explain Germany's pursuit of its interests in the Arctic, as viewed through its Observer status in the Arctic Council.

John Hobson defines neoliberalism as an approach that views sovereign states as rational actors that try to increase their own long-term interests by creating international regimes that enhance their global state power.¹ Arthur Stein describes neoliberal institutionalism as a “view of international institutions as the self-interested creations of states.” As autonomous self-interested behavior of states can cause conflict, states prefer to construct international institutions to deal with numerous concerns. States may also create institutions in order to reduce the transaction costs associated with autonomous decision-making.²

Garry Nagtzaam uses neoliberal institutionalism theory to analyze the making of environmental treaty regimes. Even though the AC is generally not considered a regime and cannot pass treaties, it is a high-level intergovernmental forum focusing on creating environmental and sustainable development standards and norms. As the theory of neoliberal institutionalism is often used to analyze international environmental agreements, or regimes, this theory is suitable for this thesis, as certain principles and norms within these environmental agreements influence the behavior of actors and facilitate cooperation. Nagtzaam states that neoliberal institutionalism focuses on intergovernmental negotiations, institution building and regime

¹ John M. Hobson, *The State and the International Relations. Themes in International Relations* (Cambridge University Press, 2000), 104.

² Arthur A. Stein, “Neoliberal Institutionalism,” in *The Oxford Handbook on International Relations*, ed. Christian Reus-Smit, and Duncan Snidal (Oxford University Press: 2008), 209.

effectiveness through cooperation. Strategic negotiations between states require cooperation to solve mutual problems. According to Garry Nagtzaam, neoliberals regard the state as the main focus of regime analysis, with special focus on state interests that shape negotiation processes. Furthermore, theorists argue that nation-state activities, such as the creation of international organizations, advance states' interests.³

The theory of neoliberal institutionalism is largely based on the assumption that the absence of a sovereign authority, which could enforce binding international agreements, incentivizes states to pursue their own interests.⁴ Neoliberal institutionalism accepts that states are rational actors and that the international system is anarchic. Neoliberals contend that within the international system, states worry about other states taking advantage of them in a state of anarchy.⁵ Therefore, neoliberals argue that states “work together to mitigate the effects of anarchy, produce mutual gains, and avoid shared harm.”⁶

In his book *After Hegemony*, Robert Keohane, one of the leading scholars of neoliberal institutionalism, develops a theory of cooperation through international institutions in global politics. He describes states as rational egoists, who generally wish to maximize their gains from any transaction, while minimizing costs. He claims that discord prevails as often as harmony in global politics. According to Keohane, “Without the spectre of conflict, there is no need to cooperate.”⁷ Institutions, rules, and regulations allow for cooperation by decreasing transaction costs and increasing the credibility of state arrangements. Neoliberal

³ Gerry Nagtzaam, *The Making of International Environmental Treaties. Neoliberal and Constructivist Analyses of Normative Evolution* (Cheltenham, UK: Edward Elgar Publishing, 2009), 3-4, 48, 28-29.

⁴ Robert Jervis, “Realism, Neoliberalism, and Cooperation: Understanding the Debate,” *International Security* 24, no. 1 (1999): 43.

⁵ Srinivasan, *State participation in international treaty regimes* (London, New York: Routledge, 2016).

⁶ Jervis, “Realism, Neoliberalism, and Cooperation: Understanding the Debate,” 45.

⁷ Robert O. Keohane, *After Hegemony. Cooperation and Discord in the World Political Economy* (New Jersey: Princeton University Press, 1984), 54.

institutionalists are concerned with the concepts of power and self-interest in the international system; they therefore expect states to establish institutions if they believe they will benefit from cooperation.

According to Keohane, neoliberal institutionalism clarifies questions about the impact of institutions, such as patterns in cooperation and discord. The actors, such as states, must have common interests and must believe they will gain from the cooperation, or they will not collaborate. As a result, cooperation depends on the institutional arrangement. Keohane defines institutions as a set of rules that prescribe behavioral roles, constrain activities, and shape expectations. International institutions therefore specify how interests are defined and how actions are interpreted. On the other hand, domestic interests can trump incentives to engage in international institutions. He clarifies: the “open international economic environment, characterized by opportunities for mutually rewarding exchange under orderly sets of rules, provides incentives for peaceful behavior, but not that it necessitates or ensures such behavior. That is, cooperation must be distinguished from harmony. Cooperation is not automatic, but requires planning and negotiation.”⁸

According to Keohane and Nye, international regimes consist of a set of governing arrangements that affect interdependent relationships through which governments regulate and control transnational and interstate relations.⁹ Interdependence between states and institutional arrangements are believed to facilitate cooperation “by raising the anticipated costs of violating others’ property rights, by altering transaction costs through the clustering of issues, and by

⁸ Robert O. Keohane, “Neoliberal Institutionalism A perspective on world politics,” in *International institutions and state power: essays in international relations theory*, ed. Robert O. Keohane (London: Westview Press, 1989), 8.

⁹ Robert O. Keohane and Joseph S. Nye, “Power and Interdependence,” *International Organization* 41, no. 4 (1987): 728, 732.

providing reliable information to members.”¹⁰ Therefore regimes are considered to be efficient institutions and of value for states, because their rules and principles create bonds between state actors to reach mutually beneficial agreements, even though states might have conflicting or overlapping interests.¹¹ Regimes facilitate agreements by providing rules, principles and procedures.¹² Neoliberal institutionalism demonstrates that institutions can actually help in resolving problems and come to mutually beneficial outcomes, especially because increased globalization has led to more and more interdependence between states’ economies, resulting in extensive networks of interdependence throughout the world.¹³

For neoliberals, state preferences are a fundamental cause of state behavior in world politics. To motivate conflict, cooperation, or any other costly foreign policy action, states must possess sufficiently intense state preferences. Each state seeks to realize its distinctive preferences under varying constraints imposed by the preferences of other states. The relationship of states to the social context, national or international, have a fundamental impact on state behavior. Societal ideas, interests, and institutions influence behavior by shaping state preferences. For liberals, the configuration of state preferences is one of the most important matters in world politics.¹⁴

Policy interdependence, which refers to the distribution and interaction of preferences, explains the link between state preferences and the behavior of other states. Patterns of interdependent preferences belong among the most fundamental structures influencing state behavior. Andrew Moravcsik defines policy interdependence as “the set of costs and benefits created for foreign

¹⁰ Keohane, *After Hegemony. Cooperation and Discord in the World Political Economy*, 97.

¹¹ Keohane, *After Hegemony. Cooperation and Discord in the World Political Economy*, 97.

¹² Robert O. Keohane, “The Demand for International Regimes,” *International Regimes* 36, no. 2 (1982): 354.

¹³ Robert Keohane, and Joseph S. Nye, “Globalization: What’s New? What’s Not? (And So What?),” *Foreign Policy* 118 (2000): 114, 117.

¹⁴ Andrew Moravcsik, “Taking Preferences Seriously: A Liberal Theory of International Politics,” *International Organization* 51, no. 4 (1997): 513, 520.

societies when dominant social groups in a society seek to realize their preferences.”¹⁵ Arthur Stein explains that a state’s concern that other states would cheat on agreements, can be counterbalanced by creating interdependence among states and setting up institutional arrangements to facilitate cooperation and find common preferred outcomes.¹⁶

According to liberal theory, patterns of interdependent state preferences pose a binding constraint on state behavior. When state preferences are compatible with those of other states, there is a strong incentive for peaceful coexistence, but when underlying state preferences are zero-sum or deadlocked, and impose costs on other countries, there is a high potential for interstate tension and conflict.¹⁷ When issues are conflictual enough to motivate willingness to accept high costs and risks, and therefore there is an improvement of the welfare of both parties involved, states have an incentive to negotiate policy coordination.¹⁸

Keohane argues that in repeated games, where actors have reciprocal contact with each other in the future, such a course of action invites retaliation, and it is better for players to cooperate. As a result, actors learn to cooperate for mutual benefit. In the prisoner’s dilemma game, institutions can resolve the common action problem and allow states to reach mutually preferred outcomes. If governments fail to comply with the rules, other governments will observe their behavior and perhaps take regulatory action, which would damage not only the mutually beneficial set of arrangements but also the violator’s reputation, and thus their ability to make future agreements.¹⁹ In short, neoliberals believe that the problem of the prisoner’s dilemma game can be overcome when games are played repeatedly.

¹⁵ Andrew Moravcsik, “The new liberalism,” in *The Oxford Handbook on International Relations*, ed. Christian Reus-Smit, and Duncan Snidal (Oxford University Press, 2008): 239.

¹⁶ Arthur A. Stein, “Neoliberal Institutionalism,” 208.

¹⁷ Moravcsik, “Taking Preferences Seriously: A Liberal Theory of International Politics,” 520-521.

¹⁸ Moravcsik, “Taking Preferences Seriously: A Liberal Theory of International Politics,” 521.

¹⁹ Keohane, *After Hegemony. Cooperation and Discord in the World Political Economy*, 75, 103.

The behavior of states is therefore not just directed at attaining relative gains but on absolute gains (win-win scenario). To achieve gains most states will find they will have to cooperate. Cooperation does not necessarily imply harmony, but can also arise out of discord, along with the shared belief “that cooperation may take the form of bilateral and multilateral treaties, informal agreements, delegation to formal inter-governmental institutions.”²⁰ Therefore cooperation requires that the actions of separate individuals or organization be brought in conformity with one another through a process of negotiation.²¹ As a result state actors have to choose whether to comply and cooperate based on the cost/benefit analysis. State actors often try to change their own national preferences through joint scientific research or cultural and political exchanges with other actors. As a result, state actors exchange information with other actors, “but also their shared beliefs with respect to equilibrium behavior; they change their preferences over courses of actions even if their underlying preferences are stable.”²² Neoliberal institutionalists believe that cooperation will not occur if states do not have common interest. However only having a common interest is not enough to establish cooperation; institutions that reduce uncertainty are also necessary.

One reason that international institutions facilitate cooperation is their ability to provide information to states. According to Keohane, governments have to open up to one another, because international policy coordination and the development of international regimes depend not merely on interests and power but on expectations and information. A regime is effective if it provides high-quality information to policy makers.²³ Therefore information mainly removes the problem of uncertainty that states have about others. When examining regimes, neoliberal institutionalists argue that norms are an essential part of what constitutes a regime and that

²⁰ Keohane, and Nye, *Power and Interdependence*, 256.

²¹ Keohane, *After Hegemony. Cooperation and Discord in the World Political Economy*, 51.

²² Duncan Snidal, “Rational Choice and International Relations,” *Handbook of International Relations* (2012): 84.

²³ Keohane, “The Demand for International Regimes,” 346.

norms and principles are the main component of a regime, prescribing state behavior.²⁴ Norms therefore shape states' behavior by "matching actors' interests and therefore by serving as a "resource" through which to assert their interests."²⁵

Keohane describes soft power as "the ability to achieve one's purpose by affecting the behavior of others," which suggests that it is important to attract others in world politics, and not only to force them by threatening military force or economic sanctions. Soft power relies on an attraction to shared values to engender cooperation.²⁶ According to Keohane the soft power of a country relies on three resources: its cultures, its political values, and its foreign politics. In the future soft power will increase, and the countries gaining most soft power are those "with multiple channels of communication that help to frame issues, whose dominant culture and ideas are closer to prevailing global norm, and whose credibility is enhanced by their domestic and international values and policies."²⁷

Robert Keohane describes another way of achieving mutual policy adjustment: hegemony. He states that hegemonic power is widely accepted, by establishing and maintaining international regimes that serve their own interests while being compatible with the interests of others.²⁸ Hegemony reduces transaction and mitigates uncertainty, because hegemony is expected to ensure consistency for the system as a whole. As a result, the formation of international regimes can ensure legitimacy for the standards of behavior, which hegemony plays a key role in

²⁴ Donald Puchala, and Raymond Hopkins, "International Regimes. Lessons from Inductive Analysis," *International Regime* 36, no. 2 (1982): 247.

²⁵ Henning Boekle, Volker Rittberger and Wolfgang Wagner, "Norms and Foreign Policy: Constructivist Foreign Policy Theory," *Tübinger Arbeitspapiere zur Internationalen Politik und Friedensforschung* 34a (1999): 7.

²⁶ Joseph S. Nye, *Soft Power, The means to success in world politics* (New York: Public Affairs, 2004), 5, 7.

²⁷ Nye, *Soft Power, The means to success in world politics*, 31-32.

²⁸ Keohane, *After Hegemony, Cooperation and Discord in the World Political Economy*, 243.

maintaining.²⁹ Hegemony therefore helps to create shared interests by providing rewards for cooperation and punishment for defection.³⁰

To summarize, neoliberal institutionalism assumes that all individuals and states are rational actors that regulate their relations in a world that is characterized by mutual interdependence. Peace, freedom, and economic growth can be achieved through cooperation for the common good, especially by increased international cooperation among states, regimes, or individual actors. The neoliberal institutionalist theory assumes that states benefit from cooperation and enjoy absolute gains.

The theory of neoliberal institutionalism has strong explanatory power regarding Germany's interest in the Arctic. In an article addressing the potential that oil and gas development pose for both cooperation and conflict in the Arctic, Kathrin Stephen notes the currency of neoliberal institutionalism theory in international relations discourse on the Arctic. She observes that the theory often is used to analyze environmental treaties or regimes in general, and given the increasing stakes in Arctic resources, it applies especially well.³¹ The AC is the main body enabling regional cooperation and policy coordination among Arctic states. The theory of neoliberal institutionalism also recognizes the importance of actors other than states, such as the AC.

²⁹ Keohane, *After Hegemony, Cooperation and Discord in the World Political Economy*, 138.

³⁰ Keohane, *After Hegemony, Cooperation and Discord in the World Political Economy*, 78.

³¹ Kathrin Keil, "The Arctic: A new region of conflict? The case of oil and gas. Cooperation and Conflict," *SAGE Journals* 49, no. 2 (2014): 162, 164

2.2. Introduction of realism theory

In addition to neoliberal institutionalism, several realist theories explain state behavior and interstate relations. Each of them sees states as the central actors in world affairs and emphasizes that they coexist in an anarchic social order where there is no central authority to protect them from one another. According to John Mearsheimer, an American political scientist and international relations scholar, who belongs to the realist school of thought, the principal emphasis in realism is on security competition among great powers within the anarchy of the international system. In this system, survival is the main goal. Hence, states seek to balance power and “compete among themselves either to gain power at the expense of others or at least to make sure they do not lose power.”³² In this structure of the international system, states have no other choice in order to survive; otherwise, they cannot pursue any other goal such as economic benefit or protecting human rights.³³ Joseph Grieco states that international anarchy fosters competition and conflict among states and inhibits their willingness to cooperate even when they share common interests.³⁴ Stephen Walt argues that realists emphasize the “enduring propensity for conflict between states.” He further states that realism provides an explanation for war, which is an obstacle to cooperation, because it emphasis on competition.³⁵

For realists, the insecurity of states poses the central problem in international relations. In the anarchic system, “self-help” is therefore the primary motivation; states must be able to protect themselves, as there is no other agency, institution, or actor that can help instead.³⁶ Realism does not imply that states cannot form alliances or cooperate if these alliances are useful for

³² John J. Mearsheimer, “Structural Realism,” in *International Relations Theories: Discipline and Diversity Third Edition*, ed. Tim Dunne, Milja Kurki, and Steve Smith (Oxford: University Press 2013), 75.

³³ Mearsheimer, “Structural Realism”, 75.

³⁴ Joseph M. Grieco, “Anarchy and the Limits of Cooperation: A Realist Critique of the Newest Liberal Institutionalism,” *International Organizations* 42, no. 3 (1988): 485.

³⁵ Stephen M. Walt, “International Relations: One World, Many Theories,” *Foreign Policies* 110, Special Editions: Frontiers of Knowledge (1998): 30-31.

³⁶ Stephen M. Walt, “Realism and Security,” *Oxford Printed Encyclopedia of International Studies* (2017): 1.

dealing with threats or any kind of conflict. According to Walt, realists see intuitions as “tools of statecraft” used to advance specific security interests. As a result, for realists, institutions “are largely epiphenomenal: they reflect the underlying balance of power and the interests of the most powerful states.”³⁷ Therefore, states have no choice but to put their own interests ahead of the interests of other states or institutions. As a result, states will balance against any state becoming too powerful. For example, a balance of power took place during WWII: When Germany became too powerful and occupied other parts of Europe, other alliances stepped in and defeated Germany.³⁸

In order to analyze Germany’s behavior in the Arctic and the AC, both realism and neoliberal institutionalism are suitable to use as theoretical framework. They are the dominating international relations theories, and they can provide explanations regarding state behavior. The explanations of realism and neoliberal institutionalism are distinctly different, however, which facilitates determining which better interprets Germany’s activities in the Arctic. Nowadays some scholars fear the return of the Cold War in the world and in the Arctic, as a result of shifting political orders in the world.³⁹ The new confrontation politics of the United States; human crises, such as the refugee crisis affecting Europe; and Brexit’s potential impacts on Europe’s economy all contribute to uncertainty and potential destabilization. Some scholars have already mentioned the “race for resources” in the Arctic, after Russia planted a flag at the bottom of the North Pole in 2007. These are all activities that realism would expect to happen.

On the other hand, cooperation has prevailed in the Arctic for decades and is one of the key elements of the success of the AC. Therefore, I am applying the theory of neoliberal

³⁷ Walt, “Realism and Security,” 12, 16.

³⁸ Mearsheimer, “Structural Realism,” 75.

³⁹ Zachary Karabell, “A cold war is coming, and it isn’t China’s fault,” *Foreign Policy* (October 31, 2018), accessed January 16, 2019, <https://foreignpolicy.com/2018/10/31/a-cold-war-is-coming-and-it-isnt-chinas-fault>.

institutionalism to analyze to what extent this theory explains Germany's behavior in the Arctic. Furthermore, I am also looking at Germany's Arctic behavior through the lens of the theory of realism.

2.3. Application to the thesis

I analyze Germany's interest and behavior in the Arctic through the lens of neoliberal institutionalism and realism. I choose the theory of neoliberal institutionalism because it explains state behavior and state interaction while emphasizing cooperation. For centuries, Germany has shown a history of cooperation in the Arctic region in various areas. First Germany showed cooperative behavior in research and science, when participating in international expeditions. Since World War II, Germany has exhibited cooperative behaviors in foreign policy and nowadays it engages cooperatively in political and economic affairs in the Arctic. Germany is a forerunner regarding climate change, and its behavior serves as an example for others. It clearly states that it wants to take responsibility in the fight against global warming.

Showing a collaborative attitude towards the eight-member states of the Arctic Council does not keep Germany from taking an opposing stance to individual members on specific issues. This can be seen in Germany's perception of the Northwest Passage as an international strait. Canadian Arctic policy refers to the passage as the "Canadian Northwest Passage" and "Canadian internal waters."⁴⁰ The United States' Arctic policy, like Germany's, refers to the Northwest Passage as a "strait used for international navigation."⁴¹ This disagreement poses an interesting conundrum: According to Rule 6 of Annex 2 to the Arctic Council Rules of

⁴⁰ Government of Canada, "Statement on Canada's Arctic Foreign Policy" (2017): 40, accessed January 30, 2018, http://international.gc.ca/world-monde/assets/pdfs/canada_arctic_foreign_policy-eng.pdf.

⁴¹ George W. Bush, The White House, "National Security Presidential Directive 66, Homeland Security Presidential Directive 25: Arctic Region Policy," III, B (Washington, January 12, 2009): 5, accessed January 30, 2018), <https://www.hsdl.org/?view&did>.

Procedure, the applicant for Observer status should “recognize Arctic States’ sovereignty, sovereign rights and jurisdiction in the Arctic,” which Germany violates on the question of the NWP.

Germany is a dominant political force in Europe and is Europe’s biggest economy, globally well connected in terms of goods, services, and finance. As a result, Germany benefits from globalization and an open, free, and peaceful international political order. At the same time, Germany is also extremely dependent on the functioning of this order and therefore extremely vulnerable to the disruption of the international order and the free trade of goods and services. Nowadays, the international political order is under increased pressure due to numerous stresses, such as war, refugee and financial crises, as well as national political issues. Climate change further stresses the political order. Through the European Union and NATO, Germany is linked to Arctic security developments. Cooperation remains the central characteristic of Arctic politics, as reflected in Germany’s Arctic Policy Guidelines. As an Observer to the Arctic Council (AC), Germany has advocated cooperation in research to lay the groundwork for future sustainable political decisions. As a partner without any claims to resources in the Arctic region, Germany can use its international reputation in polar research to foster collaborative efforts, such as the multimillion-dollar MOSAiC project, to study global climate change.⁴²

Neoliberal institutionalism therefore serves best as the theoretical lens through which I analyze Germany’s Arctic interests. It focuses on states’ pursuit of self-interests and on the importance of power structures. The theory holds specific expectations of state behavior. States pursue power and increase their security by several means, such as developing their militaries,

⁴² Seventeen countries will participate in this Multidisciplinary Drifting Observatory for the Study of Arctic Climate (MOSAiC). This will be the first year-round expedition into the central Arctic exploring the Arctic climate system.

increasing their national power through economic means, and seeking alliances. States are in a condition of complex interdependence with no clear hierarchy. Neoliberal institutionalism posits that international regimes like the AC reflect interest in cooperation rather than evoking conflict. Therefore, the following assumptions arise for this thesis: 1) An opening Arctic would result in states pursuing resources and economic development to boost national power. 2) Cooperation is driven by the will to achieve a stable and consistent political environment, even though such cooperation might involve infringing on other states' sovereignty.

I evaluate Germany's behavior as an Arctic Council Observer, using neoliberal institutionalism theory's approach to cooperation and conflict. I aim to determine whether the theory explains Germany's presence and behavior in the Arctic. Applying neoliberal institutionalism, one can compose the following propositions regarding Germany's developing interest in the Arctic region and as an Observer in the Arctic Council: The AC as an international institution constrains competition and shapes cooperative behavior in the region for non-Arctic states, such as Germany. Germany participates in the Arctic Council because it is concerned with absolute economic gains; that is, based on rational self-interested behavior. Cooperation through the AC reduces transaction costs for Germany. I expect Germany to act in its own economic interest. Furthermore, I expect Germany to cooperate with other states to solve mutual problems and to produce benefits, especially in the field of research. Therefore, I expect Germany to pursue absolute gains; to achieve a win-win scenario, Germany must cooperate. Germany has a fast-growing economy and is dependent on Arctic resources. As a result, Germany is forced to cooperate with states such as Russia for oil and gas, for instance. Neoliberal institutionalism assumes that economic interests are the driving force behind Arctic affairs. Therefore, I will consider whether Germany's economic interests in the Arctic represent a driving force for acting in the North.

Besides the theory of neoliberal institutionalism, I also apply realism to evaluate Germany's behavior as an Arctic Council Observer and interest in the North. Realists see states as the central actors in world affairs, and they are preoccupied with power and security in order to survive in an anarchic system. Opposing neoliberal institutionalism, realists argue that cooperation and collaboration are unlikely and instead emphasize the prospect of conflict and competition. Germany has the strongest economy in Europe with a GDP (Gross Domestic Product) worth almost €3.300bn in 2017, accounting for over a fifth (21.3%) of EU GDP.⁴³ Germany needs access to Arctic resources, such as oil and gas and rare earth metals to remain competitive. Therefore, the theory of realism might explain Germany's interest in securing its own economic interest in the Arctic through resource development and stable trade in oil and gas with Russia and Norway. In a time of scarce resources, Germany has depended on these resources for its economy to function, and therefore clearly states in its Arctic Policy Guidelines how important free access to resources and stable trade is. Realists would assume that denied access to these important energy sources would result in a threat to Germany's economic and security interest and would therefore mean a breakdown of diplomacy. In the worst case, the whole Arctic region might be threatened and military conflict might erupt. The German Arctic Policy Guidelines recognize these possible threats and state that overlapping interests of the Arctic countries could result in a geopolitical race for sovereignty rights, or rights to natural resources, which "would pose an economic, environmental and security policy threat to stability in the region and would also affect Europe's security interests."⁴⁴ However, the German Government tries to prevent conflicts through cooperation and coordination, which contradicts realism theory.

⁴³ European Commission. Eurostat, "Which member states have the largest share of EU's GDP" (2018), accessed January 2019, <https://ec.europa.eu/eurostat/web/products-eurostat-news/-/DDN-20180511-1?inheritRedirect=true>.

⁴⁴ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities" (Berlin, 2013): 10, accessed July, 2018, https://www.bmef.de/SharedDocs/Downloads/EN/International/Leitlinien-Arktispolitik.pdf?__blob=publicationFile.

2.4. Research Design

The purpose of research is to discover answers to questions through the application of systematic procedures, specifically, to learn what drives Germany's engagement in the Arctic. According to Creswell "research designs are types of inquiry within qualitative, quantitative or mixed method approaches, that provide specific direction for procedures in a research design."⁴⁵ A research design is therefore a researcher's strategy and structure to answer his or her research question. This thesis was conducted as qualitative research based on primary and secondary sources. According to Creswell, "a qualitative research design is an approach for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures, data typically collected in the participant's setting, data analysis inductively building from particulars to general themes, and the researcher making interpretations of the meaning of the data."⁴⁶ Lune and Berg explain that qualitative researchers seek answers by examining various social settings and the groups or individuals who inhabit these settings.⁴⁷ Therefore qualitative researchers are most interested in how humans arrange themselves and their settings. I viewed these methods as the most suitable for the purpose of this thesis. Since my objective is to understand Germany's interest in the Arctic, I used qualitative methods. In this thesis, I discuss and apply the two international relations theories of neoliberal institutionalism and realism and collect qualitative data to test the explanatory value of these theories. Although I focus on the theory of neoliberal institutionalism, I consider whether and to what extent the theory of realism might explain Germany's behavior. Therefore, this thesis is a theory-driven thesis with analysis of

⁴⁵ John W. Creswell, *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches. Fourth Edition* (Los Angeles: SAGE, 2014), 12.

⁴⁶ Creswell, *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*, 4.

⁴⁷ Howard Lune and Bruce L. Berg, *Qualitative Research Methods for the Social Science. Ninth Edition* (New York: Pearson, 2017), 5.

qualitative data. The research method involves data collection, literature analysis and interpretation, as well as interviews.

There are different characteristics of qualitative research, such as the emergent design. This means that the initial plan for the research cannot be tightly prescribed; some or all phases may change after the researcher enters the field and begins to collect data. Another characteristic is reflexivity. I am German, fully adapted to the culture and language, so my research might be influenced by my background. The third characteristic is the holistic account that tries to develop “a complex picture of problems or issues under study and involves reporting multiple perspectives, identifying many factors involved in a situation and sketching a larger picture that emerges,” according to Creswell.⁴⁸ I consider multiple perspectives on Germany’s interests, such as the view of polar explorers during the heroic age or today’s interests of Germany’s government, as well as Germany’s role as an Observer in the Arctic Council.

The strengths of the qualitative research method lie in flexibility, broadness and depth.⁴⁹ Qualitative research is a powerful tool as it provides more context, history and meaning than any other approach, as it uses multiple sources of data. Qualitative research opens the way for discovery and insights that might be pursued in subsequent studies. Furthermore, it provides a thorough understanding and analysis about an organization, in this case the AC. It is a useful technique for researching relationships, behaviors, and motivation in organizational settings.⁵⁰

The quantitative method is mostly used to compare data in a systematic way and to identify overarching patterns, but I wanted to analyze Germany’s behavior in the Arctic, therefore the

⁴⁸ Creswell, *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*, 186.

⁴⁹ Mathew B. Miles, A Michael Hubermann and Johnny Saldana, *Qualitative Data Analysis. A Methods Sourcebook. Third Edition* (Los Angeles: SAGE, 2014), 11.

⁵⁰ Lune and Berg, *Qualitative Research Methods for the Social Science*, 168.

qualitative research is more suitable for this thesis. The qualitative method is used when a topic is new, or little research has been done. Furthermore, researchers use qualitative methods when they want people's perceptions and expertise on issues. I chose to conduct qualitative research owing to a dearth of information on Germany's interest in the Arctic in general and Germany's Observer role specifically. Little research has combined these topics including Germany's Arctic history. I am exploring an area that past studies have tended to overlook. Whereas the quantitative research takes an approach to theory, investigating a hypothesis and setting up strategy, the qualitative method focuses more on participants' behavior, and interviews, to understand and analyze experience, ideas and values.⁵¹

I used the theories of neoliberal institutionalism and realism to guide me in the data collection process. The interviews I conducted and the literature I reviewed most closely corresponds with the theory of neoliberal institutionalism. Most of the reviewed literature confirm the cooperative behavior of Germany in the Arctic and the Arctic Council. Nevertheless, I remained open to learning more information that might fall outside the theoretical framework. In my thesis, I therefore, moved back and forth from multiple angles, such as German history, Germany's Arctic policy guidelines, Germany's interest of today and analyzing these from the perspective of neoliberal institutionalism.

2.5. Case Study

Researchers define the case study variously. Creswell describes a case study as “a design of inquiry in which researcher develops an in-depth analysis of a case, event, or process.”⁵² A case may also be defined as an organization, an event, period of time, space and environment.⁵³

⁵¹ Creswell, *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*, 54, 59, 64.

⁵² Creswell, *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*, 14.

⁵³ Miles, Huberman and Saldana, *Qualitative Data Analysis. A Methods Sourcebook*, 28-29.

Georg and Bennet describe the case study approach as “the detailed examination of an aspect of a historical episode to develop or test historical explanations that may be generalizable to other event.”⁵⁴ In my thesis, I am using the case of Germany to test the theories of neoliberal institutionalism and realism. Bogdan and Biklen define case study as a “detailed examination of one setting, or a single subject, a single depository of documents, or one particular event.”⁵⁵ Lune and Berg define case study a “method involving systematically gathering enough information about a particular person, social setting, event or group to permit the research effectively understand how the subject operates or functions.”⁵⁶ Thus, the case study systematically investigates an event or a set of related events with the aim of describing and explaining these phenomena. Taken together, these various definitions suggest case study is an approach capable of examining simple or complex phenomena using analysis varying from single individuals to large institutions. The research approach involves an up close, in-depth and detailed examination of a subject of study, meaning it is limited in space and time.

My research objective is to analyze Germany’s interest in the Arctic. I therefore examined Germany’s polar history with special focus on Germany’s historical interests. I analyzed several historical events through the lens of historical interest in the region. Furthermore, I examined Germany’s contemporary existence and projects in the high North. To interpret Germany’s actions, I used a theoretical framework.

⁵⁴ Alexander L. George and Andrew Bannet, *Case Studies and Theory Development in the Social Sciences* (Cambridge: MIT Press, 2005), 5.

⁵⁵ Robert. C. Bogdan and Sari Knopp Biklen, *Qualitative Research Education. Fourth edition* (Boston, MA: Allyn and Bacon, 2003), 54.

⁵⁶ Lune and Berg, *Qualitative Research Methods for the Social Science*, 160.

2.6. Sources of Data

To conduct analysis within a case study, the researcher must collect detailed information using a variety of data collection procedures. My data has been acquired through several methods including a secondary literature review and a primary document review, including intergovernmental documents, scientific articles and reports from various non-governmental organizations. Primary sources in qualitative research refer to interviews, focus groups, diaries, participant observation, records, speeches and archives. Secondary sources, or document analysis, derived from books and academic articles and refer to research conducted earlier by other researchers or other purposes such as official statistics, records, statements and accounts. I read policy papers, official statements, and formal declarations, agreements and manuals to identify Germany's Arctic interests and approach to Arctic development and governance. I also searched media reports, press releases, expert articles and unofficial statements, and opinions to find different perspectives and narratives concerning current Arctic issues. By using a literature review, I integrated what others have said and done, tried to "build bridges between related topics and identified a central issue in the field," as Creswell recommends.⁵⁷

I have used multiple sources in German as well as books and articles written in English. The literature includes official documents from the AC as well as the German government, for instance, the German Foreign Office and the Ministry of Defense. Furthermore, I relied on published statements or speeches from conferences, for example the speech of former Foreign Minister Guido Westerwelle. I also analyzed more recent developments, especially regarding Germany's Observer role in the AC, through newspaper and peer reviewed journal articles, as well as video footage. To better understand the dimension of Germany's interest from a historical point of view, I read numerous books composed in old German writing. I visited the

⁵⁷ Creswell, *Research Design. Qualitative, Quantitative, and Mixed Methods Approaches*, 28.

archive of the AWI multiple times and spent several days looking through unpublished materials, including correspondence between officials. I had the privilege of using these unpublished documents and letters, which gave a better insight view on what German officials thought regarding recent developments in the Arctic during the time the AEPS and later the AC were founded. While visiting the archive I also spent days in the library trying to find original sources on German research and exploration in the Arctic. Especially helpful was the full collection of “Petermann’s Mitteilungen” in the AWI archive. “Petermann’s Mitteilungen” is the oldest German technical journal on geography; all significant geographical discoveries during the nineteenth and twentieth centuries were published in this journal. Petermann analyzed quite well Germany’s interest in the Arctic during the nineteenth century. His journals are all in German, so I translated any statements I used in the thesis. Furthermore, I read through the original diaries of Alfred Wegener to understand the motives behind his four expeditions to the North. The diaries can be found on the Internet. I also read the diary of Karl Koldewey, which is published in a book. I had the pleasure to meet Reinhard Krause, an expert on German polar history in person while visiting the AWI archive. Krause published numerous articles regarding Germany’s polar history. I conducted my research on Google, at the library of the University of Alaska, on official websites (Arctic Council, German government), and at the AWI archive library.

2.7. Interviews

According to Lune and Berg, an interview is defined as “conversation with a purpose.” The purpose is to gather information.⁵⁸ Interviews are particularly useful for gathering the story behind a participant’s experiences and to further investigate his or her responses. Interviews offer researchers the opportunity to uncover in-depth information that is not otherwise

⁵⁸ Lune, and Berg, *Qualitative Research Methods for the Social Science*, 55.

accessible. In my case, much of the literature describes Observer behavior in the AC in general, but it is difficult to find an inside view on Observers' behavior, especially Germany's. I therefore decided to use in-depth, semi-structured interviews as a method to collect data with expert involved with German issues in the AC. I interviewed a German Government official⁵⁹ and Kathrin Stephen, who works for the Institute for Advanced Sustainability Studies (IASS) and represents Germany in the AC in the Sustainable Development Working Group (SDWG).

I developed an interview protocol, where I used semi-standardized open-ended interviews, which involved the implementation of a number of predetermined questions on a special topic - Germany's behavior, interest and aim in the AC. Due to technical reasons and due to the wish of the interviewee, the interviews were not recorded. As the interviews were done in German, I later translated them into English.

The advantage of such interviews is that it provides presumably reliable qualitative data, as it offers the informants the freedom to give their own personal view and insight of a certain topic. Given that the interviews were conducted in German, there exists a risk of error or misinterpretation in my translation of the respondents' comments into English. Furthermore, respondents' comments will be shaped, to some degree, by the questions asked and the conventions about what they can speak about openly. Interviewees will only provide what they are prepared to reveal about their perceptions of events and opinions. Furthermore, this information might be subjective, as it is shaped by the perspective of the interviewee.

⁵⁹ I contacted other officials, but no one else agreed to be interviewed.

2.8. Historical research

In order to analyze why Germany became an Observer from the founding of the AC, I analyze Germany's polar history with a special focus on Germany's interest in the Arctic. According to Lune and Berg, historical research is a method for discovering from numerous accounts what happened during the past and offering theoretical explanations for various historical events. Thus, historical research is "an attempt to understand and explain social life in historical settings as well as the historical context for our present. They elaborate: "Historical research is the study of the relationships among issues that have influenced the past, continue to influence the present, and will certainly affect the future."⁶⁰ Therefore the questions of the past gain relevance for questions in the present or future. This is exactly the case in my thesis, as I try to analyze Germany's past, thereby explaining its engagement in the Arctic and Arctic Council. As a result, the importance of historical research is not only the collection of information, but also the interpretation or analysis of the data, which will "uncover unknown aspects and seek implications of events from the past and their connections with the present," as Lune and Berg explain.⁶¹

To sum up, I used data from multiple sources. For the historical research, I mainly relied on books and original diaries. For Germany's contemporary interests, I mostly used journal articles and government papers. The German Arctic Policy Guidelines were very useful in analyzing Germany's behavior and interests in the Arctic and the AC. The two interviews I conducted, helped to further advance and confirm my research and data, that the journal articles already provided.

⁶⁰ Lune and Berg, *Qualitative Research Methods for the Social Science*, 149.

⁶¹ Lune and Berg, *Qualitative Research Methods for the Social Science*, 149.

2.9. Limitation

The thesis provides an overview of Germany's endeavors in the Arctic, beginning with the whaling period and finishing with its recent activities. The thesis does not cover every expedition to the North, nor does it cover every recent research program, or expedition of every institution concerning the Arctic. The thesis demonstrates that Germany is not a newcomer to the Arctic and has been active in the North for centuries.

Many historical documents used in this research are written in German. I am a native speaker of German and therefore fully comprehend these documents. I have translated all text quoted in this thesis. Research is often influenced by the author's own experience. My German background and experience may have led me to interpret documents differently than others would. For example, being German, I might see WWII differently than others. As climate protection is such a prevailing issue in Germany, I might take climate protection for granted.

Access to information, especially historical documents, is often limited, due to censorship by officials. Moreover, a large portion of historical documents from WWII have been lost or destroyed. While visiting the AWI archive, I was given access to unpublished documents regarding letters and statements of AWI officials and ministries. Due to the German archive law, I was only allowed to view documents older than thirty years. More recent documents covering the last thirty years have not yet been made available to the public. Another limitation regarding historical research is the fact that besides diaries, historical documents are often shaped and interpreted by others. As I only conducted two interviews, they did not serve as a foundation or fundamental basis for my thesis, they only served as an add-on to confirm previous found data.

2.10. Definition of Germany

When using the term “Germany” or “German” before WWII, this thesis considers activities and ideas that have emerged from the German-speaking world. Expressed in geographical political categories, this means that the term German is not limited to the imperial borders of 1871, but rather to the boundaries of all countries of the German Confederation of 1848. After World War II Germany was divided into the Federal Republic of Germany and German Democratic Republic. Since reunification in 1990 the country is known as the Federal Republic of Germany, or shortly Germany. Besides one short paragraph, where I explain East Germany’s Arctic engagement, I use “Germany” after WWII to refer to the Federal Republic of Germany or West Germany.

2.11. Definition of the Arctic

The Arctic may be considered a single region, but it cannot be unambiguously defined. Relevant criteria to define the boundaries of the Arctic include geographic, climatic or biological factors, as well as political borders.

The most basic and common geographical definition is often delimited by the Arctic Circle (66°33’N). A second means to define the region is on the basis of temperature. In this way, the Arctic comprises the area north of the 10° C July isotherm. Isotherm is understood as a line of geographical locations that have the same or equal temperatures, in this case mean July temperature of 10°C. A third definition focuses on the northern tree line. The tree line is the northern limit beyond which trees do not grow, it is a transition zone between continuous boreal forest and tundra. Another geographical definition focuses on the permafrost line. According to this definition the Arctic region comprises all territory that is permanently frozen. Each definition on its own usually excludes regions which should be included and comprises areas

which should be excepted. Therefore in this thesis, I will apply the definition of the Arctic Council's (AC) Arctic monitoring and assessment program (AMAP), which covers all oceans and territories to the north of the Arctic Circle, and north of 62°N in Asia and 60°N in North America, and modified to include the marine areas north of the Aleutian chain, Hudson Bay, and parts of the North Atlantic Ocean including the Labrador Sea.⁶² This definition connects well with the aim to comprehensively explore the interdependencies and cooperation between Arctic and non-Arctic states, global developments, and the region's transformation as this definition includes all Arctic states and inhabitants of the region. Second, it recognizes the region's interdependence with global dynamics and other parts of the world. Third, it allows to investigate different issue areas (environmental, economic and political) at the same time.

2.12. Literature Review

The literature I used can be divided into three main categories, books, journals and official government papers. For the historical chapters of the thesis, I mainly used historical books in the form of diaries. For the analysis of Germany's engagement in the Arctic Council, journal articles and official government papers formed the bulk of my resources.

Wanda Oesau wrote two important books about whaling in the Arctic region. She clearly explains and defines the expeditions going North, with detailed descriptions of the shipping companies and the ships.⁶³ Many other historical books I used were diaries written by the explorers themselves. On the Internet archives of the Alfred-Wegener-Institute, I found the diaries of the Denmark Expedition from 1906/08 from polar explorer Alfred Wegener published

⁶² Janine J. Murray, "Physical/Geographical Characteristics of the Arctic," *AMAP Assessment Report, Arctic pollution issues* (1998): 9-10.

⁶³ Wanda Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. - 19. Jahrhundert*. (Glücksstadt: J.J. Augustin, 1955); Wanda Oesau, *Schleswig-Holsteins Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. - 19. Jahrhundert* (Glücksstadt: J.J. Augustin, 1937).

by Reinhard Krause.⁶⁴ His diary entries have been supported by the book from Mott Greene, who wrote a thorough portrait of the scientist Alfred Wegener.⁶⁵

The same is true for the expeditions of Karl Koldewey, who conducted the first German expeditions to the North and kept journals on his experience that were published in two books, German – and English.⁶⁶ Very helpful for the analysis of the expeditions have been *Petermann's Mitteilungen*, which was the oldest German-language journal specialized in geography in which all important geographical discoveries of the 19th and 20th centuries were published.⁶⁷ Arctic expeditions comprised only a small part in *Petermann's Mitteilungen*, but this journal interpreted expeditions and put them in a geopolitical, geo-strategic and historical context.

Another book covering German polar history upon which I relied heavily is historian David Murphy's *German Exploration of the Polar World, A History, 1870-1940*.⁶⁸ Murphy analyzed the endeavors of well-known German explorers, such as Erich von Drygalski, Alfred Wegener, and Wilhelm Filchner, and their expeditions. Murphy emphasizes the hardships German explorer faced in the Arctic, and their courage, and puts them in the context of the corresponding political regimes. According to Murphy, German explorers started the race for polar glory

⁶⁴ Reinhard A Krause, *Alfred Wegener (1880-1930). Tagebuch vom 24. Juni 1906 bis zum 6. August 1908 mit sieben Anhängen geführt während der dänischen Nordost-Grönland-Expedition (Danmark-Expedition) unter der Führung von Ludvig Mylius-Erichsen (1872-1907)*, accessed January 2018, <http://hdl.handle.net/10013/epic.48063>.

⁶⁵ Mott T. Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift* (Baltimore: John Hopkins University Press, 2015).

⁶⁶ Karl Koldewey, *Die erste deutsche Nordpolar-Expedition im Jahre 1868 beschrieben von K. Koldewey. Mit einem Vorwort von A. Petermann* (Gotha: Justus Perthes, 1871); Karl Koldewey, *The German Arctic Expedition of 1869-70 and Narrative of the Wreck of the Hansa in the Ice* (London: Sampson Low, Marston, Low & Searle, 1874).

⁶⁷ August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann 11. Band*. (Gotha: Justus Perthes, 1865); August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann. 17. Band* (Gotha: Justus Perthes, 1871); August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt, Ergänzungsheft Nr. 179*, H, Philipp, Ergebnisse der W. Filchnerschen Vorexpedition nach Spitzbergen (Gotha: Justus Perthes, 1914).

⁶⁸ David Thomas Murphy, *German Exploration of the Polar World, A History, 1870-1940* (London: University of Nebraska Press, 2002).

driven by interlocking motivations, such as personal fame, the romance of the unknown, and the vision of wealth at the poles. Furthermore, Murphy explains the perceptions of the German public, government and scientific community towards Germany's repeated expeditions at the poles. Hugo Eckener, who was a commander of the Zeppelin, provides a fascinating treatment of the Zeppelin journeys.⁶⁹ His memories are a testimony of German aviation history, as Eckener himself was the driving force behind the achievement of the airship, having succeeded Zeppelin in the enterprise. Reinhard Krause, a science historian working at the German polar research institute AWI, whom I met while conducting research in the archives of the AWI, published numerous articles on German polar history. For this thesis, I especially relied on his article "International Polar Year 1882-1883 digitized meteorological data legacy"⁷⁰ to familiarize myself with the significance of the International Polar Year. Also helpful was the work of Cornelia Lüdecke, a German polar researcher, author and professor at the University of Hamburg, and one of the leading figures in the history of German polar research, who wrote her dissertation on German explorer Eric von Drygalski, a minor figure in the Arctic, who specialized more in Antarctic expeditions.⁷¹ The journalist Klaus Fleischmann published a book titled *Zu den Kältepolen der Erde*,⁷² which chronically traces West and East Germany's engagement in the Arctic after WWII to the present, which was helpful.

Franz Selinger recounts in his two books Germany's Arctic history during WWII: *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945* and *Wetterflieger in der Arktis 1940-1944, Erlebnisse und Erfahrungen der Wettererkundungs-Staffeln im Hohen*

⁶⁹ Hugo Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen* (München: Mobiles Verlag, 1949).

⁷⁰ Reinhard A. Krause, Hannes Grobe and Rainer Sieger, "International Polar Year 1882-1883 – the digitized meteorological data legacy," *WDC-Mare Reports 0008* (2010).

⁷¹ Cornelia Lüdecke, *Die deutsche Polarforschung seit der Jahrhundertwende und der Einfluss Erich von Drygalski* (München: Kamloth, 1995).

⁷² Klaus Fleischmann, *Zu den Kältepolen der Erde - 50 Jahre deutsche Polarforschung* (Bielefeld: Delius, Klasing & Co. KG, 2005).

Norden.⁷³ He describes the various weather reconnaissance squadrons in the North and the work in the stationary meteorological sites, as well as the floating weather buoys. Wilhelm Dege, the leader of the last active German weather station code named “Operation Haudegen,” describes in *War North of 80, The last German Arctic Weather Station of World War II*,⁷⁴ not only the mission and the weather observation program, but also the recreational activities, hopes and fears of his team until they finally surrendered in September 1945.

The literature after WWII deals with the foundation of the Arctic Environmental Protection Strategy (AEPS), followed by the foundation of the Arctic Council. Few articles describe the original participation process of non-Arctic states to become involved in the Observer role of the AEPS and the AC. In his article “Poland and the Arctic: Between Science and Diplomacy,”⁷⁵ Piotr Graczyk touches on this process, while focusing on Poland’s experience.

Very few articles analyze Germany’s role and interest in the Arctic as an Observer. Most articles address the non-Arctic states as a whole. Timo Koivurova, director and research professor at the Arctic Centre, University of Lapland wrote well-known articles regarding Arctic governance, with special focus on the Arctic Council, and the challenges it faces.⁷⁶ I further relied on publications by other well-known Arctic scholars, such as Blunden, Exner-Pirot, Lassi, and Young.⁷⁷ Germany’s role as an Observer in the Arctic Council is changing, because

⁷³ Franz Selinger and Werner Schwerdtfeger, *Wetterflieger in der Arktis 1940-1944, Erlebnisse und Erfahrungen der Wettererkundungs-Staffeln im Hohen Norden* (Stuttgart: Motorbuch Verlag, 1982); Franz Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945* (Hamburg: Convent Verlag, 2001).

⁷⁴ Wilhelm Dege, *War North of 80, The last German Arctic Weather Station of World War II* (Colorado: University Press of Colorado, 2004).

⁷⁵ Piotr Graczyk, “Poland and the Arctic: Between Science and Diplomacy,” *Arctic Yearbook* (2012).

⁷⁶ Timo Koivurova, “Alternatives for an Arctic Treaty – Evaluation and a New Proposal,” *Review of European Community & International Environmental Law* 17, no. 1 (2008);

Timo Koivurova, “Limits and Possibilities of the Arctic Council in a Rapidly Changing Scene of Arctic Governance,” *Polar Record* 46, no. 2 (2009).

⁷⁷ Margaret Blunden, “Geopolitics and the northern sea route,” *International Affairs* 88, no. 1 (2012); Heather Exner-Pirot, Lassi Heininen, and Joël Plouffe, “Change and Innovation in the Arctic. Introduction,” *Arctic Yearbook* (2013); Oran R. Young, “Arctic Governance - Pathways to the Future,” *Arctic Review on Law*

new rules for Observers have been implemented, putting various new limitations on Observers. Sebastian Knecht published an article “Exploring Different levels of Stakeholder Activity in International Institutions: Late Bloomers, Regular Visitors, And Overachievers in Arctic Council Working Groups,”⁷⁸ wherein he analyzes participation levels by various actors in the AC, with special focus on Observer states’ attendance. He discovered that Germany sent no delegation to AC meetings for most the time between 1998 and 2015.

Another article that addresses Germany as an Observer specifically is Małgorzata Śmieszek and Paula Kankaanpää’s “Observer States’ Commitments to the Arctic Council: The Arctic Policy Documents of the United Kingdom and Germany as Case Study.”⁷⁹ This article focuses on the German Arctic Policy Guidelines and examines these guidelines in accordance with the Nuuk Declaration, and in comparison, with the British guidelines. Helga Haftendorn, a Professor Emeritus of Political Science at the Freie Universität Berlin (FU Berlin), wrote numerous articles regarding Arctic governance and Germany’s position in the Arctic in particular. She analyzed Germany’s dependence on Arctic resources and its resulting vulnerability. In her article, “The case for Arctic governance: The Arctic puzzle,”⁸⁰ she argues that the various challenges of climate change the Arctic faces today can only be mitigated through cooperation and adequate institutions. Haftendorn describes Germany’s Observer position as first being that of a “bystander” and later becoming an Arctic player thanks to the infrastructure of the AWI and Germany’s involvement in Arctic science. Steinicke wrote his

and Politics 1, no. 2 (2010); Oran R. Young, “The Arctic in Play: Governance in a Time of Rapid Change,” *The International Journal of Marine and Coastal Law* 24 (2009).

⁷⁸ Sebastian Knecht, “Exploring Different levels of Stakeholder Activity in International Institutions: Late Bloomers, Regular Visitors, And Overachievers in Arctic Council Working Groups,” in *Governing Arctic Change. Global Perspectives*, ed. Kathrin Keil, and Sebastian Knecht (London: Palgrave Macmillan, 2017).

⁷⁹ Śmieszek Małgorzata, and Paula Kankaanpää, “Observer States’ Commitments to the Arctic Council: The Arctic Policy Documents of the United Kingdom and Germany as case Study,” *The Yearbook of the Polar Law* 6 (2015).

⁸⁰ Helga Haftendorn, “The case for Arctic governance: the Arctic puzzle,” *University of Iceland, Institute of International Affairs, Centre for Arctic Policy Studies* (2013), accessed January 5, 2018, <http://ams.hi.is/sites/ams.hi.is/files/thecaseforarcticgovernance.pdf>.

dissertation on Germany's Arctic engagement from a climatic, economic, and geopolitical view of the Arctic. In his dissertation *Germany's Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests*,⁸¹ he analyzes Germany's interests in the Arctic and emphasizes that they are driven by international and domestic developments, such as economic needs.

Pelaudeix and Thierry's article *The European Union Arctic Policy and National Interests of France and Germany: Internal and External Policy Coherence at Stake?*⁸² addresses, as the title states, European Union Arctic Policy and the national interests of France and Germany. The EU is struggling to become an Arctic player as their application to gain permanent Observer status in the AC was put on hold, as a result of Brussels' approval of a ban on seal products. Germany on the other hand, established its own Arctic policies. Pelaudeix and Thierry conclude that the EU is searching for its new role in Arctic governance right now, especially with new powerful actors like Asian states entering the geopolitics and geo-economics of the Arctic.

Kathrin Stephen, Scientific Project Leader at the Institute for Advanced Sustainability Studies (IASS) in Potsdam and part of the German Observer delegation to the Sustainable Development Working Group (SDWG) of the Arctic Council, supported this research through her publications and an interview. In one of her articles "The Arctic: A new region of conflict? The case of oil and gas. Cooperation and Conflict,"⁸³ she describes the neorealist and neoliberal institutionalist explanations for the state and future of the Arctic region. She analyses the various levels of interest in the North by stakeholders and the likelihood of confrontation over

⁸¹ Stefan Steinicke, "Germany's Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests" (PhD diss., Universität der Bundeswehr, 2017).

⁸² Cecile Pelaudeix and Thierry Rodon, "The European Union Arctic Policy and National Interests of France and Germany: Internal and External Policy Coherence at Stake?" *Northern Review* 37 (2014).

⁸³ Kathrin Keil, "The Arctic: A new region of conflict? The case of oil and gas. Cooperation and Conflict," *SAGE Journal* 49, no. 2 (2014).

Arctic resources and institutional adjustments. In another article, “German Involvement in the Arctic: Policy Issues and Scientific Research,”⁸⁴ she describes various means of German engagement in the High North, such as science, politics, and interdisciplinary collaboration.

In the last part of my thesis describing Germany’s contemporary interests, I rely on a number of government documents. First and foremost, the Guidelines of the German Arctic Policy titled *Assume responsibility, seize opportunities*.⁸⁵ In these Guidelines, the German Government clearly states its interest in the Arctic region, such as economic opportunities, freedom of navigation, environmental protection, and freedom of science. Furthermore, I referred to several official documents of the AEPS and the Arctic Council, such as the *Iqaluit Declaration, The First Ministerial Meeting of the Arctic Council*.⁸⁶ I also refer to numerous documents from German ministries, regarding energy or security politics and raw material strategy.⁸⁷ Government published data emphasizes Germany’s fight to mitigate global climate change, and to promote environmental protection and sustainable economic development, which are just a few points high on the German Arctic Agenda. German companies see expanded economic opportunities in the exploitation of Arctic raw materials. In return Germany provides the Arctic with support in form of expert knowledge on research and highly developed technology with regards to environmental standards and sustainable economic development. Germany enjoys a

⁸⁴ Kathrin Keil, “German Involvement in the Arctic: Policy Issues and Scientific Research,” *The Arctic Institute (IASS)* (Potsdam, 2015), accessed December 2, 2016, <http://www.thearcticinstitute.org/german-involvement-arctic/>.

⁸⁵ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities” (Berlin, 2013), accessed July, 2018, https://www.bmel.de/SharedDocs/Downloads/EN/International/Leitlinien-Arktispolitik.pdf?__blob=publicationFile.

⁸⁶ Arctic Council, “Iqaluit Declaration. The First Ministerial Meeting of the Arctic Council” (Iqaluit, Canada 1998), accessed July 23, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/86/01_iqaluit_declaration_1998_signed%20%282%29.pdf?sequence=1&isAllowed=y.

⁸⁷ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, “Eckpunkte für ein integriertes Energie- und Klimaprogramm” (Berlin, 2018), accessed November 12, 2018, [http://www.bmu.de.service/publikationen/downloads/details/artikel/eckpunkte-fuer-ein-integriertes-energie-und-klimaprogramm](http://www.bmu.de/service/publikationen/downloads/details/artikel/eckpunkte-fuer-ein-integriertes-energie-und-klimaprogramm); Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, “Klimaschutzbericht 2018 zum Aktionsprogramm Klimaschutz 2020 der Bundesregierung/Climate Protection Report 2018 on the Federal Government's Climate Protection 2020 Action Programme.” (Berlin, 2018), accessed December 18, 2018, https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimaschutzbericht_2018.pdf.

strong reputation in Arctic research. Information on the website of the German Polar Institute AWI show, that Germany possesses noteworthy research infrastructure, such as the icebreaker *Polarstern*.⁸⁸

Most historical sources describe expeditions and their stated goals, without tying those goals to greater German political-economic aims. The same is true for much of the literature that addresses Germany's engagement in the Arctic Council. Many journal articles describe the development of Observers as a whole, but few documents analyze Germany's interactions specifically, and the aims it pursues through its Observer status in the AC. Therefore, this research project strives to fill the gap in the literature by placing Germany's Arctic engagement in historical context and analyzing the various objectives it pursues in the Arctic, as exemplified by its engagement in the Arctic Council.

⁸⁸ Alfred-Wegener-Institut Helmholtz-Zentrum für Polar-und Meeresforschung, accessed November 12, 2018, <https://www.awi.de>.

Chapter 3 Germany's Historical Interest in the Arctic

3.1 Introduction

Humankind's relentless desire to know what lies beyond the familiar has led to exploration of the farthest reaches of the planet. Scientific curiosity, the quest for renewable resources, trade routes, and markets, and finally the race for the North Pole lured explorers to the Arctic. A spirit of adventure, hunger for knowledge, fascination with the polar world, ambition, and national pride drove German expeditions to the Arctic. From the outset, science has been in the foreground, and the scientific yield of German expeditions in the era 1865 to 1930 is especially noteworthy.⁸⁹

Except for an initiative by the Friesians in the year 1040, German expeditions have been recorded only since the middle of the seventeenth century. A series of Greenland and Spitzbergen expeditions inspired by interest in whale and seal hunting provided a vehicle for polar research. Whale and seal oil offered enormous profits, and the German regions of Schleswig-Holstein and Hamburg participated especially successfully. The German physician Friederich Martens wrote the first scientific reports on Spitzbergen in the 1670s.

The German history of interaction with the Arctic between 1865 and 1880 is one of human determination to comprehend the natural world, and of overcoming environmental hardships and constraints. Arctic expeditions fostered German pride, validated German scientific inventions and fulfilled a German northern destiny. German Arctic science created national heroes; men left their fatherland, endured hardship in a hostile environment, and returned having fulfilled their missions. They became representatives of a new German national identity

⁸⁹ In examining German interests in the Arctic, this thesis considers the expeditions sent from Europe's German speaking region, rather than restricting itself to the boundaries of the German Confederation from 1848 or of today's Germany.

in international scientific circles. From the late nineteenth century, Germans came to view the polar environment as illuminating thoroughly German qualities. The most striking event was found in the accounts of the wreck of the *Hansa* (1869-70). Germans interpreted the crew's survival as proof of German tenacity and discipline. As Eugen von Enzberg wrote in 1898, courage, stamina, bravery and enthusiasm were needed to overcome the struggle in the north. The *Hansa* crew's survival demonstrated Teutonic virtue; the Hanse men proved themselves to be true Germans.⁹⁰

August Petermann deserves the honorary title "father of German polar research." Petermann never personally participated in a polar expedition; he remained a theoretician. Petermann nevertheless was a man of action, an enthusiastic defender of his own ideas. Petermann's main contribution lay in directing German science toward polar research and in melding the German nation with this noble pursuit. He believed that the future of German science lay in the polar project, and he championed the popular feeling that Germans had both the right and the obligation to take part in northern exploration.⁹¹ Petermann appealed to German patriotic duty, through which Germans could display their national character. For Petermann polar exploration was a matter of national duty, a contest of national character.

Germany in the late nineteenth and early twentieth centuries was a nation striving to prove itself at the poles but failed to do so. For decades Germans went to battle against nature in the polar regions, driven by the quest for fame, scientific achievement, and political gain. Usually they returned with hopes unfulfilled.

⁹⁰ Eugen von Enzberg, *Heroen der Polarforschung* (Leipzig: Reisland, 1898), 156.

⁹¹ David Thomas Murphy, *German Exploration of the Polar World, A History, 1870-1940* (London: University of Nebraska Press, 2002), 20.

Despite the fact that Koldewey and Wegener conducted Germany's most famous expeditions, and Wegener is seen as a hero today, their expedition didn't fulfill their initial hopes and ended in broken dreams, exhaustion and death. Despite their scientific achievements, they failed to make important geographical discoveries and they attained none of the most notable "polar firsts." The heroes of German polar research were not bold sailors, but theoreticians such as Petermann, Neumayer, and Weyprecht. What has been accomplished on expeditions by German men has been many small, details that have distinguished themselves by German thoroughness, organizational talent and order. German Arctic expeditions produced a valuable body of meteorological, geomagnetic and hydrographic data, as well as new knowledge of geological and biological data of Greenland. Wegener and von Drygalski returned with an immense quantity of scientific data, although fame eluded them. Germans also mapped an extensive portion of Greenland for the first time, bringing attention to natural features such as Franz-Josef-Fjord.⁹²

Wegener concluded the era of polar research known as the heroic period, in which highly committed individualists competed for polar achievements or pursued their private research goals. Participants' personal performances played heavily in the success of expeditions. This era marked the height of German polar exploration of the classical age, when Germany claimed greatest success through Wegener's breakthroughs in Arctic meteorology, glaciology and geophysics.

The International Polar Year (IPY) in the 1870s, on the other hand, constituted international cooperation that Germany initiated to coordinate overarching national plans. The increasing internationalization of science can be seen in the organizational development of the IPYs. The

⁹² Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 63-64.

German government refused to finance a third Arctic expedition, but stressed that polar research needed co-operation among nations. Therefore, the German foreign office made enquiries to the governments of Russia, Sweden, Norway, Great Britain and the United States regarding their willingness to take part in an international polar exploration campaign. As a result of the IPY and the agitation of Georg von Neumayer the southern hemisphere was included in the program of the first IPY.⁹³

The polar expeditions between the world wars tested various types of transport-possibilities and new expedition techniques. During this time, scientists laid the foundation for modern polar research. Technological innovation and scientific achievement characterized German commitment to the poles during this era. The polar environment would prove to the world the German nation's resilience. The German Zeppelin expedition of 1931 pioneered new complex aerial photography techniques and equipment. German expeditions were also notable for their creative use of unmanned aviation tools, such as piloted balloons and kites. Furthermore, they experimented with mechanical means of overland transportation, such as propeller driven sleds and the remote detection and transmission of polar weather conditions during the war.⁹⁴

Misjudgment in planning, failure of leadership, and simple equipment breakdowns undermined German efforts. While men such as von Drygalski, Koldewey and Wegener certainly committed errors, their competence, bravery, and stamina can still be compared to counterparts from other countries. Germans brought back numerous scientific data, but rarely returned home having accomplished their goals.⁹⁵ The heroic era of German polar research ended on the eve of World War II, when polar exploration took a backseat. After Adolf Hitler took over power,

⁹³ Reinhard A. Krause, and Rainer Sieger, "International Polar Year 1882-1883 – the digitized meteorological data legacy," 12.

⁹⁴ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 14.

⁹⁵ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 211-212.

Germany pursued different goals, such as the expansion of the *Reich*. When Germany occupied Norway, Sweden declared neutrality, and Finland fought against the Soviet Union, the Arctic was used for weather reporting and the “Arctic weather war” began.

3.2 Before World War II

3.2.1. Whaling

Germans officially began to explore the poles nearly a millennium ago. Records state that German sailors set out in 1040 to explore the hitherto unknown parts of the northern region. A few centuries later the search for new whaling grounds began. Whalers were the first to report about the North, and a few scientists used whaling vessels to conduct the first scientific research in the Arctic. In Germany, geographers’ excitement about the North Pole inspired ship-owners with business interests in the Arctic, as well as politicians who sought to strengthen national interests by means of German seafaring.⁹⁶ Germany wanted to prove that it could participate in international trade and compete in whaling with other nations, such as the Dutch and French, who had been engaged in the industry for decades.

Adam von Bremen, a German cleric and medieval historian recorded in his book “History of the Archbishops of Hamburg-Bremen” that German Frisian sailors set out in the year 1040 to explore the Northern sea.⁹⁷ Researchers believe that the Frisian seamen traveled as far as the Faeroes.⁹⁸ Adam von Bremen’s narratives did more than simply document the Arctic; his efforts responded to the need for mapping the unknown North. Bremen also described the Church’s missionary zeal specifically in Norway and Sweden.⁹⁹

⁹⁶ Klaus Barthelmes, *Die deutschen Interessen am modernen Walfang vor 1914* (Magisterarbeit, Universität Köln, 1989), 55-56.

⁹⁷ Adam von Bremen, *History of the Archbishops of Hamburg-Bremen* (New York: Columbia University Press, 2002), 220.

⁹⁸ Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 17.

⁹⁹ Adam von Bremen, *History of the Archbishops of Hamburg-Bremen*, 215.

Whaling first piqued broader German interest in the Arctic. The Basques began whaling in northern waters in the tenth and eleventh centuries, and they alone whaled in the northern region for almost four centuries. Whale meat and fat were highly prized, and the blubber was used to make oil for lamps.¹⁰⁰ The Germans began whaling by hiring on Dutch ships.¹⁰¹

Beginning in the seventeenth century, Germany sought new hunting grounds and geographical discoveries in the Arctic. Of the several German cities that participated in the Greenland expedition, Hamburg stood at the forefront. Other northern German ports of trade included Altona, Eckernförde, Elmshorn, Flensburg, Föhr, Glückstadt, Kiel, and Friedrichstadt, but only Hamburg gained a port on Spitzbergen, in the northwest at *Hamburgbukta (Hamburg Bay)*, in the seventeenth century. German ships first ventured to the area around Spitzbergen and Jan Mayan. The Arctic whaling efforts launched from German seaside towns are collectively referred to as the Greenland expedition, because many people believed Spitzbergen was part of Greenland, and therefore some people called Spitzbergen Greenland. Only at the beginning of the eighteenth century did hunting begin in the Davis Strait between Greenland and Baffin Island.¹⁰² The whaling era developed in waves and was tumultuous, owing to strong competition, blockades, numerous wars, and sovereignty claims.¹⁰³ The heyday of the whaling industry lasted from 1650 to 1780. During this period, hundreds of ships sailed annually into the waters around Spitzbergen and Greenland. During the years 1643-1861 more than 6,000 trips to the north were counted.¹⁰⁴

¹⁰⁰ Leonid Breitfuss, *Das Nordpolargebiet. Seine Natur, Bedeutung und Erforschung* (Berlin: Springer-Verlag, 1943), 63-64.

¹⁰¹ Wanda Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. - 19. Jahrhundert* (Glücksstadt: J.J. Augustin, 1955), 20.

¹⁰² Wanda Oesau, *Schleswig-Holsteins Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. - 19. Jahrhundert* (Glücksstadt: J.J. Augustin, 1937), 31-32.

¹⁰³ Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenschlag*, 66-77, 85.

¹⁰⁴ Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenschlag*, 86.

German governments eagerly sought expanding trade opportunities, anticipating revenues and profits that would raise the living standard. For many decades whaling produced sizable profits, and Europeans and Euro-Americans perceived the Arctic as a resource frontier to be exploited. Trade richly benefitted the participating cities, not only providing oil, but many other advantages such as employment as ship builders, painters, carpenters, and craftsmen.¹⁰⁵ Hundreds of German families lived off this industry.

Whalers journeyed to the far north not only for the meager wages they earned; the industry held a certain mystique, as the North was fairly unknown territory. Seamen gained in seaworthiness, patience, courage, and intrepidity in the Arctic. They brought home more glory than blubber. Deprivation, exertion, torment, and illnesses such as scurvy and frostbite caused agony while they built and strengthened character.¹⁰⁶ The geographer and cartographer August Heinrich Petermann (1822-1878) wrote: “Whaling is the most important branch of all merchant shipping. ... to show, in peace, the most appropriate means of demonstrating the courage, endurance, and spirit of enterprise of the seaman in their truest and brightest light.”¹⁰⁷

Many considered the whaling industry a training grounds for future fleets. German governments recognized the applicability of such character to military service. Whaling would bring forth efficient sailors who could serve in the case of sea war.¹⁰⁸ The Prussian King Friedrich the Great (Friedrich II) had encouraged whaling in his Reich. In the year 1768 the state financed several

¹⁰⁵ Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. - 19. Jahrhundert*, 80.

¹⁰⁶ Oesau, *Schleswig-Holsteins Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. – 19. Jahrhundert*, 286-287.

¹⁰⁷ August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann 11. Band* (Gotha: Justus Perthes, 1865), 159. Translated by author.

¹⁰⁸ Oesau, *Schleswig-Holsteins Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. – 19. Jahrhundert*, 65.

expeditions to Greenland and Spitzbergen.¹⁰⁹ Later, in the nineteenth century, the naturalist Constantin Wilhelm Lambert Gloger (1803-1863) also recognized that whaling could form a capable, hardened, well-trained crew for warships and that whaling could therefore be used to form a war fleet.¹¹⁰

Whalers were the first to report scientific findings from the Arctic. During the Scientific Revolution and the Age of Exploration, Europeans' understanding of the natural world expanded greatly. Science was certainly not at the forefront of whaling, but it provided the least expensive and easiest way to transport scientists into the far north. The surgeon and naturalist Friederich Martens (1635 - 1699)¹¹¹ produced the first scholarly German report on whaling activities in the Arctic. Martens worked on the whaling vessel *Jonah in the whale* (*Jonas im Walfisch*) under Captain Peter Petersen of Frieze (Pieter Pieterszoon von Friesland) starting April 15, 1671. During his voyage to the far north, he conducted the first scientific observations of the nature, "including the flora, fauna, and climate of Svalbard, and published his notes in the book "Spitzbergische oder Groenlandische Reise-Beschreibung (Spitzbergen or Greenlandic Travel-Description)." Martens' work has become renowned beyond Germany's borders; many researchers consider it the authoritative reference on whaling in the region for many decades.¹¹²

In the year 1868, two ships left Germany for the far north focusing on geographical science, the *Bienenkorb* and the *Albert*. These voyages can be better understood as exploration journeys,

¹⁰⁹ August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann 11. Band*, 159. Translated by author.

¹¹⁰ Constantin. W. L. Gloger, *Der Walfischfang und seine Beförderung in Deutschland, als väterländische Zeitfrage in volkswirtschaftlicher, seemännischer und staatlicher Bezeichnung* (Berlin: A. Hirschwald, 1847), 27. Translated by author.

¹¹¹ Literature uses different spelling of his first name: Friederich, Friedrich, Friderich.

¹¹² Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenslag vom 17. - 19. Jahrhundert*, 28-33.

rather than polar expeditions. They were fishing excursions to the northern Arctic Ocean to which a scholar was assigned. The *Bienenkorb* left on February 21, 1869, with the purpose of hunting seals on the island of Jan Mayen and whales on the east coast of Greenland. Ice conditions prevented hunting, however. On board the steamer was the physicist and astronomer Franz Joseph Dorst from Jülich, who carried out meteorological, astronomical and magnetic investigations in the polar sea between Spitzbergen and the east coast of Greenland. On Svalbard, today a bay carries Dorst's name, the Dorstbukta, southeast of Heleysund at the north coast of Barentsöya.¹¹³

The second vessel, the *Albert*, left Germany on May 23, 1869 under the command of Captain Hinrich Hashagen. Emil Bessels (1846-1888) from Stuttgart, a zoologist, naturalist, and explorer, served as the expedition's scientist. Bessels investigated the Gulf Stream current between Spitzbergen and Novaya Zemlya. Albert's Island (Albertsöya), on Svalbard, close to the Albertsund, commemorates this voyage.¹¹⁴ Petermann however has never traveled to the North, but encouraged scientists on these voyages to gather data to support his research, for instance his discovery of the origin of the Gulf Stream.¹¹⁵ He urged Bessels to assist in his research by circumnavigating Spitzbergen, visiting Gilesland, and striving to reach a high latitude between Spitzbergen and Novaya Zemlya, following the Siberian coast line etc. Bessels completed none of Petermann's requests, but Bessels' observations of sea-surface temperatures between Spitzbergen and Novaya Zemlya are noteworthy, and they made a name for Bessels in the geographic field. Bessels commented that science was conducted during this journey in the

¹¹³ Hans Szymanki, *Die Dampfschiffahrt in Niedersachsen und in den angrenzenden Gebieten von 1817 bis 1867* (Bremen: EHV Academicpress, 1954), 360. Anglicized, these place names are Dorst Bay and Barents Island.

¹¹⁴ Szymanki, *Die Dampfschiffahrt in Niedersachsen und in den angrenzenden Gebieten von 1817 bis 1867*, 360.

¹¹⁵ August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann 11. Band*, 158.

“towrope of trade.”¹¹⁶ In his journal Petermanns geographische Mittheilungen (PGM),¹¹⁷ Petermann noted that Bessels’ results and observations were of considerable value, despite the expeditions’ double objectives (hunting whales, seals, and walruses as well as scientific purposes), and their failure to make any new discoveries or to fulfill any of Petermann’s instructions.¹¹⁸

Therefore, whaling may be considered a pillar of polar research, at a time when scientific research was just beginning in the region. Martens, Bessels, and Dorst brought back significant scientific results, including reports about climate, flora and fauna. These scientists embodied the initial quest for scientific solutions to practical problems. Petermann used whaling to transport scientists to the north to test his hypotheses and develop theories. The legacy of German scientists on board whaling vessels and their contributions to geographic knowledge in the Arctic can be seen in the German place names in the region: Hamburg Bay, Dorst Bay, and Albert Sound.

Oesau explains the end of German participation in whaling not as a result of a lack of prey or lack of crews, but because of a lack of foresight, commitment, and entrepreneurial skills, and owing to the transition from the sailing ship to steamship and from hand to cannon harpoon. She states bluntly that German shipping companies were backward. While the Norwegian, Swedish, and English ship-owners-built ships specially designed for the Greenland cruise,

¹¹⁶ Herbert Abel, and Hans Jessen, *Kein Weg durch das Packeis. Anfänge der deutschen Polarforschung (1868-1889)* (Bremen: Carl Schneemann Verlag, 1954), 38.

“*Im Schlepptau des Handels*” - Translated by author

¹¹⁷ Mittheilungen aus Justus Perthes Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann (PGM) (Communications from the Justus Perthes Geographical Institute concerning important new studies in the whole field of geography, by Dr. A. Petermann). PGM was the oldest German technical journal on geography, all significant geographical discoveries during the 19th and 20th century were published. Furthermore, Petermann reported on physical, bio-geography, geology, natural phenomena, ethnography.

¹¹⁸ August Petermann, *Mittheilungen aus der Justus Perthes’ Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesamtgebiete der Geographie von Dr. A. Petermann. 17. Band* (Gotha: Justus Perthes, 1871), 345. Translated by author.

German ship-owners were satisfied with their traditional merchant ships. Interested in short-term profits, they resisted investing in new equipment. Their lack of foresight meant that their goals did not materialize.

Regardless of the lack of German foresight, the profitable trade in whaling had begun to decline in the early nineteenth century, owing to massive over fishing in the region. Furthermore, petroleum and synthetic materials gradually replaced blubber as lubricants, and electricity replaced oil in lamps. In 1861 the German Greenland expeditions ended.¹¹⁹

3.2.2. The First German Scientific Expeditions to the North

The geographer and cartographer August Heinrich Petermann is often referred to as the father or founder of German polar research.¹²⁰ The foundation for German polar exploration was laid during the Geographers' Meeting in Frankfurt in 1865. Here, Peterman found a suitable forum to prepare his plans for a first German North Pole expedition. He organized and defined the research programs of the first and second polar expeditions. These expeditions would prove his hypotheses about the navigability of the Arctic Ocean and the land extension from Greenland to the North Pole.

Petermann began his efforts to establish German polar research in 1865 during a period of extreme political unrest. The German nation state did not yet exist. Petermann's efforts to organize a government-funded polar expedition failed, and therefore he organized an expedition privately. Logistically and financially the Bremer Committee for the German North Polar

¹¹⁹ Oesau, *Hamburgs Grönlandfahrt auf Walfischfang und Robbenschlag vom 17. - 19. Jahrhundert*, 86.

¹²⁰ Reinhard A. Krause, "Hintergründe der deutschen Polarforschung von den Anfängen bis heute," *Deutsches Schifffahrtsarchiv* 16 (1993): 7.

Cruise (Bremer Komitee für die deutsche Nordpolarfahrt) supported Petermann and his plans.¹²¹

Petermann's interest in the polar region lay in the idea of the navigability of the North Polar Sea. He developed several hypotheses including an open navigable North Polar sea surrounded by an icebelt and an extension of Greenland past the central Arctic to northwest of the Bering Strait. His theories were based on limited observation data and scientific ideas developed through various expeditions. Further polar exploration proved the invalidity of his hypotheses.¹²² Nevertheless, Petermann's foresight and initiatives inspired much research in the Arctic. He is therefore called the founder of German Arctic research.

The Austro-Prussian War in the summer of 1866 produced feelings of national virtue in Prussia and throughout northern Germany. Petermann believed the time was ripe to expand and protect German economic interests, especially in the North. A united Germany convened at Gotha in October 1867 and agreed, based on Petermann's urging, to undertake a trip to northeastern Greenland.¹²³ German Arctic exploration outlined by Petermann began with a small-scale expedition by a single ship, followed by a large-scale expedition with two ships.

3.2.3. German North Pole Expedition

In 1868 the first German North Pole Expedition took place under the command of Karl Koldewey, a thirty-one-year-old civilian navigator trained in Bremen under the flag of the North German Confederation founded in 1866. On 24 May, 1868 Koldewey left Bergen, Norway on the ship *Grönland*. Petermann had laid down "instructions for the commander of

¹²¹ Reinhard A. Krause, "Die Gründungsphase deutscher Polarforschung, 1865-1875," *Berichte zur Polarforschung* 114 (1992).

¹²² Krause, "Hintergründe der deutschen Polarforschung von den Anfängen bis heute," 13.

¹²³ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 25-27.

the expedition”¹²⁴ in thirty-eight paragraphs of goals for Koldewey to pursue. The main aim was to sail to the highest possible latitude on the eastern coast of Greenland and then proceed further northward. Petermann anticipated open water near the coast and was hoping that the ship would be able to attain the vicinity of the Pole. Failing this, Petermann instructed Koldewey to proceed to Spitzbergen.¹²⁵

The expedition encountered a series of frustrations due to bad weather. Early on they encountered thick ice; they tried in vain to find a way through the fields of ice floes at the coast of Greenland. Eventually the crew left Greenland and turned towards Spitzbergen, where they mapped parts of the coast. On October 10, 1868, the crew returned to Bremerhaven. Koldewey stated himself that the expedition returned without having achieved major goals or contributing new scientific knowledge, and it could therefore be considered a failure. He noted, however, that “the meteorological observations, the observations of temperature and currents of the sea, the maps on the east coast of Spitsbergen, the collections made there provided a good, albeit a small insignificant contribution to the knowledge of the polar regions and are not completely without value for science.”¹²⁶

The *Grönland* had reached 81° North latitude, a not insignificant feat. Despite its limited success, the public treated the crew as heroes in the wake of their homecoming. Koldewey won international acclaim for German science, and Germany had shown that it belonged in the ranks of the great seafaring nations. As Koldewey stated: “What is more important than the insignificant scientific results is the fact that Germany has finally entered the ranks of the great seafaring nations in this field ... In having made a start on this, although having returned

¹²⁴ Instruktion für den Oberbefehlshaber der Expedition.

¹²⁵ Krause, “Hintergründe der deutschen Polarforschung von den Anfängen bis heute,” 14.

¹²⁶ Karl Koldewey, *Die erste deutsche Nordpolar-Expedition im Jahre 1868 beschrieben von K. Koldewey. Mit einem Vorwort von A. Petermann* (Gotha: Justus Perthes, 1871), 54.

unsuccessfully for this time, . . . we have maintained the honor of our young North German flag in every way, which alone is already a success.”¹²⁷ The expedition had expanded geographical knowledge and provided practical experience in the polar oceans for future polar expeditions.

Soon after the return of the *Grönland*, a second German expedition to the Arctic was launched in 1869 using the vessels *Hansa* and *Germania*. Petermann again wrote thirty-one paragraphs of instructions. The expedition’s purpose was to be scientific as well as nautical. The *Germania* was to land on East Greenland, build bases for further winter operations, and discover, survey, and investigate eastern Greenland; while the *Hansa* was to strive to reach the highest latitude possible.¹²⁸

The *Hansa* and *Germania* left Bremerhaven with great public support, including that of the King of Prussia Wilhelm I and the Prime Minister of the North German Federation Otto von Bismarck, who waved them off. One month into the expedition, the two ships became separated due to the misinterpretation of a signal. The *Germania* explored the region around Sabine Island at the west coast of Greenland, where they overwintered. On sledges, they reached 77°N latitude, a record for land-based exploration, and in the summer of 1870 the crew discovered a magnificent system of fjords and mountains on the western coast of Greenland. The greatest achievement was the discovery of the fjord that came to be known as Franz Josef Fjord. On September 11, 1870, the *Germania* returned to Bremerhaven with a broken engine.¹²⁹

¹²⁷ Koldewey, *Die erste deutsche Nordpolar-Expedition im Jahre 1868 beschrieben von K. Koldewey. Mit einem Vorwort von A. Petermann*, 54.

¹²⁸ Karl Koldewey, *The German Arctic Expedition of 1869-70 and Narrative of the Wreck of the Hansa in the Ice* (London: Sampson Low, Marston, Low & Searle, 1874), 2-4.

¹²⁹ Koldewey, *The German Arctic Expedition of 1869-70 and Narrative of the Wreck of the Hansa in the Ice*, 24, 64-79, 265, 574.

Despite the absence of the *Hansa*, which greatly reduced the expedition's personnel resources, the Germania's crew conducted extensive exploration, observations, surveys, collection of specimens. Many German names on the map of west Greenland still bear witness to this expedition, which represents a significant pioneering achievement in the exploration of East Greenland.¹³⁰

Meanwhile, in September 1869 the *Hansa* was crushed by ice off East Greenland and sank on October 22. The crew overwintered on the drifting sea ice and finally managed to reach the Moravian Herrnhut mission at Friedrichstahl in Greenland, from where they returned to Germany in September 1870.¹³¹

The Second German North Pole Expedition was considered a great scientific success, despite failing to find a route to the pole along the coast of Greenland. The crew returned with a wealth of scientific data on a region previously almost unknown to the outside world. The expedition returned with several geographical discoveries in northeast Greenland and cartographic surveys of the region. The crew collected scientific data, including geological, glaciological, geomorphological, zoological, botanical and archaeological observations; and they carried out geophysical, meteorological and hydrological measurements as well.

According to Koldewey, one goal of the expeditions was to extend "German inquiry to open up new domains, in order to show that German sailors are as qualified, as bold, and as persevering as those of other nations."¹³² Koldewey hoped that the expedition would "reawaken interest in Arctic exploration, and spur a new expedition to allow the German flag its due share

¹³⁰ Krause, "Hintergründe der deutschen Polarforschung von den Anfängen bis heute," 22-25.

¹³¹ Koldewey, *The German Arctic Expedition of 1869-70 and Narrative of the Wreck of the Hansa in the Ice*, 257-264.

¹³² Koldewey, *The German Arctic Expedition of 1869-70 and Narrative of the Wreck of the Hansa in the Ice*, 4,6.

in all scientific discoveries in the North Polar region.”¹³³ The expedition marked a decisive step towards the goal of confirming Germany's reputation as a seafaring nation, as the scientific, nautical and national significance of the expedition garnered praise.

3.2.4. The Austro-Hungarian Expedition and the International Polar Year (IPY)

The inspiration for the IPY is attributed to the determination of the Navy officer Karl Weyprecht. Together with army officer Julius von Payer, he led the Austro-Hungarian Expedition of 1872-74, which would inspire Weyprecht's proposal several years later of unprecedented international cooperation in the Arctic to advance scientific knowledge of the region. Weyprecht recognized that given the vastness of the region, only a series of Arctic stations operated by scientists from multiple nations could accomplish the monumental task of exploring, monitoring and recording a variety of phenomena of interest to the scientific world. Up to that time, expeditions had been stimulated by a competitive nationalistic urge to explore the unknown and to discover the most possible tract of unexplored globe. Weyprecht believed that the study of science, rather than purely geographical exploration, should be the dominant motivation of polar exploration. In preference to isolated expeditions, which could only view limited scientific results, Weyprecht envisioned a number of nations conducting scientific research in several simultaneous expeditions to different places around the North.¹³⁴

Karl Weyprecht and Julius von Payer, both officers of the Austro-Hungarian Navy, led the Austro-Hungarian North Pole expedition of 1872-74 on the ship the *Tegetthoff*. Weyprecht, born in Darmstadt, Germany joined the Austrian navy in 1853. Julius von Payer born in the

¹³³ Koldewey, *The German Arctic Expedition of 1869-70 and Narrative of the Wreck of the Hansa in the Ice*, 580.

¹³⁴ Reinhard A. Krause, “Das erste Internationale Polarjahr (IPY) 1882/1883: Die Entwicklung der Beteiligung Deutschlands,” *Polarforschung* 77, no. 1 (2008): 18, 25.

Austrian Empire, was a cartographer, a professor at the Theresian Military Academy, and a mountaineer who conducted several ascents in the Alps.

The expedition explored the Arctic Ocean northwest of Novaya Zemlya and discovered an archipelago at 80 degrees North latitude that they named Franz-Josef-Land, after the Austro-Hungarian emperor. Although their ships sank, the entire crew reached Novaya Zemlya, where a Russian vessel rescued them. The expedition returned with various data in the fields of meteorology, astronomy, magnetism, and zoology.¹³⁵ Recognizing the limited value of the data they had collected from such a small sector of the Arctic region, Weyprecht declared to the Geographical Society in London in 1875 as he presented the results of the expedition and stated that decisive scientific results can only be attained through a series of synchronous expeditions, whose task it would be to distribute themselves over the Arctic region and to obtain one year's series of observations made according to the same method.”¹³⁶

In 1870 strong supporters of German polar research founded the Bremer¹³⁷ Polar Association (Bremer Polarverein). After the foundation of the German Reich in 1871, the Bremer Polar Association tried to break away from the financing model of a citizens' initiative and to garner state sponsorship. As early as 1871, the Bremer Polar Association expressed the aim of building from the successes of the previous expeditions of Koldewey. Therefore, the association submitted a proposal to the government of the German Reich in 1874-75 asking for support of a third polar expedition, which the government denied. The government concluded that polar expeditions were eminently important for the progress; however, Germany alone could not conduct the exploration and data gathering needed. In order to obtain useful results,

¹³⁵ Krause, Grobe and Sieger, “International Polar Year 1882-1883 digitized meteorological data legacy,” 11.

¹³⁶ Karl Weyprecht, “Scientific work on the second Austro-Hungarian Polar Expedition 1872-4,” *Royal Geographical Society* 45 (1875): 33; Elliott Gordon Fogg, *A history of Antarctic Science* (New York: Cambridge University Press, 1992): 104.

¹³⁷ A city in northern Germany.

international cooperation would be necessary. German polar research was only possible with international partners.¹³⁸ Only large-scale simultaneous observation could lead to the desired scientific success.¹³⁹

Beginning in the mid-1870s geophysicist Georg von Neumayer figured prominently in German marine research. Independently of Weyprecht, Neumayer developed the idea of an IPY and repeatedly emphasized the importance of simultaneous bipolar observations. Neumayer's main idea was to compare results from both polar regions, with special emphasis placed on simultaneous readings taken from a network of observation stations.¹⁴⁰ After the second international meteorologists conference in Rome in 1879, an International Polar Commission was founded. Neumayer, who was director of the Reichsinstitut of the German naval observatory at the time, was elected president of the Commission, with responsibility for seeing the initiative through. The aim of the International Polar Year, as it was called by then, lay in synchronous meteorological investigations in the Arctic for development of weather and storm prediction in Europe and the United States.¹⁴¹ The International Polar Year took place from 1882 to 1883; the international effort performed continuous meteorological and geophysical observations over a period of two years. Eleven nations established twelve research stations in the Arctic, contributing to overall understanding of the polar regions and to internationalizing polar research.¹⁴²

¹³⁸ Reinhard A. Krause, "Daten statt Sensation. Der Weg zur internationalen Polarforschung aus einer deutschen Perspektive," *Berichte zur Polar- und Meeresforschung* 609 (2010): 28-31.

¹³⁹ Reinhard A. Krause, and Rainer Sieger, "International Polar Year 1882-1883 –the digitized meteorological data legacy," *WDC-Mare Reports 0008* (2010): 12.

¹⁴⁰ Krause, Grobe, and Sieger, "International Polar Year 1882-1883 digitized meteorological data legacy," 13.

¹⁴¹ Cornelia Lüdecke. "The first International Polar year (1882-83) A big science experiment with small science equipment. XXI International Congress of History of Science, Mexico City," *History of Meteorology*, 1.1 (2004): 58.

¹⁴² Krause, Grobe and Sieger, "International Polar Year 1882-1883 digitized meteorological data legacy," 4.

The International Polar Year brought back a series of individual scientific data, but it was only moderately successful in terms of its main objective. No summarizing publications appeared afterwards.¹⁴³ Nevertheless, the collected data provided a first climatology of the Arctic and provided buoyancy in Arctic research. Furthermore, the endeavor marked a paradigm shift in polar research towards collaboration, data exchange, and mutual assistance. The IPY can be regarded as highly significant to science policy and a major innovative force in practical and technical terms, which resulted from the agreement on methodology and standardization. Weyprecht and Neumeyer, more than anyone else, played leading roles in the project.

Considering the increasing international tensions at the turn of the century, the international cooperation that occurred through the first IPY worked remarkably well. For the first time, polar research proved to be a field of international cooperation.¹⁴⁴ The second International Polar Year, which began July 31, 1932 and lasted thirteen months, was initiated by Johannes Georgi, although other leading German scientists, such as Hans Dominik, Walther Bruns, and Leonid Breitfuss, participated as well. Due to financial problems, Germany was not able to establish its own research station. Germany therefore only participated in two Russian Expeditions to Franz-Josef-Land and Novaya Zemlya. The Second Polar Year can still be seen as an accomplishment for Germany, as it had initiated the IPY. The second IPY achieved technical innovations, such as the use of airplanes in the polar environment and radiosondes. Forty-four countries participated, and more than forty observation stations were established throughout the Arctic.¹⁴⁵

¹⁴³ Krause, Grobe and Sieger, "International Polar Year 1882-1883 digitized meteorological data legacy," 16.

¹⁴⁴ Krause, "Daten statt Sensation. Der Weg zur internationalen Polarforschung aus einer deutschen Perspektive," 47-50.

¹⁴⁵ Krause, "Daten statt Sensation. Der Weg zur internationalen Polarforschung aus einer deutschen Perspektive," 75-84.

In 1957-58 the International Geophysical Year took place, also referred to as the third IPY. In 2007-2009 the fourth IPY took place.

3.2.5. The Tragedy of the Schröder- Stranz Expedition

Lieutenant Herbert Schröder-Stranz (1884-1912) aimed to discover a favorable Northern Sea Route from Spitzbergen across the Arctic Ocean and along the shore of Siberia. Instead, he initiated the greatest catastrophe in German polar exploration. Schröder-Stranz wanted to organize a large-scale German Arctic Expedition (deutsche Arktis Expedition/DAE) in search of the northeast passage. Although he had gained some expedition experience in South America and on the Kola-Peninsula, the polar region was new territory for him. Lacking scientific experience, Schröder-Stranz had difficulty finding financial support for his expedition. Hence, he planned a preliminary scientific expedition to Spitzbergen in the summer of 1912, during which he would test the suitability of the equipment and crew. He planned to carry out the actual expedition one year later. Initially the expedition did not include an overwintering. It was not until the participants of the pre-expedition went on board the vessel *Herzog Ernst* in Tromsø, that Schröder-Stranz informed the crew that he anticipated overwintering. After this surprising opening, two participants withdrew from joining the expedition.¹⁴⁶ On August 5, 1912 the pre-expedition left Tromsø. The group consisted of ten German and five Norwegian expedition members, mainly inexperienced scientists and adventurers.

On August 15, 1912 Schröder-Stranz and three companions disembarked between North Cape and Cape Platen in northern Spitzbergen. The group envisaged traversing North Eastland from north to south, traverse the Hinlopen Strait and finally join the *Herzog Ernst* again on the west coast of Spitzbergen latest in December 1912.¹⁴⁷ Schröder-Stranz, above all, wanted to prove to polar researchers at home in Germany his ability to conduct a successful expedition in the Arctic

¹⁴⁶ Cornelia Lüdecke, "Wissenschaft und Abenteuer in der Arktis, Beispiele deutscher Polarexpedition," *Journal of Northern Studies* 1-2 (2007): 60.

¹⁴⁷ Hans Steinhagen, "Forscher, Abenteurer, Retter - die Spitzbergenexpedition von Kurt Wegener, Herbert Schröder-Stranz und Theodor Lerner 1912/1913," *Schriftenreihe des Instituts für Geodäsie der Universität der Bundeswehr München*, Heft 88 (2012): 49.

environment. This would prove his competence and attract investors for future ventures. Due to complete misjudgment of the situation and lack of experience in the Arctic environment, however, Schröder-Stranz and his companions disappeared, never to be found.¹⁴⁸

Thick pack ice trapped the ship *Herzog Ernst* and its remaining crew in the Sorgfjord on west Spitsbergen for the entire winter of 1912. When Schröder-Stranz and his expedition members did not arrive at the agreed meeting point, the crew faced the prospect of overwintering in the Sorgfjord or reaching Advent Bay (now Longyearbyen), about 300 kilometers (186 miles) away, to return to Germany on a different vessel as quickly as possible. Trying to reach Advent Bay on foot to avoid wintering in Spitsbergen's polar night cost four participants their lives, and one member suffered severe frost bite and returned disabled. Only Captain Ritscher reached Advent Bay on December 27, 1912 after a harrowing solo march. Captain Ritscher suffered from severe frostbite on his limbs, but was able to give a report on the fate of the expedition, so that relief operations could be initiated.¹⁴⁹

Several rescue expeditions set out the following spring, including efforts led by Kurt Wegener, Theodor Lerner, and Arve Staxrud, who brought back the remaining expedition members of Schröder-Stranz, as well as those of the Lerner expedition, whose ship was crushed by pack ice.¹⁵⁰ Schröder-Stranz and his crew had little polar experience and knowledge. Furthermore, the starting date of the expedition was too late and too close to the Arctic winter, so that a return to the vessel *Herzog Ernst* was hardly possible. The decision to leave the ship by the end of September 1912 as the polar winter approached to reach Advent Bay, which was 300 km away, contributed to the injury and deaths of expedition members. The reasons for the failure of the

¹⁴⁸ Lüdecke, "Wissenschaft und Abenteuer in der Arktis, Beispiele deutscher Polarexpedition," 61.

¹⁴⁹ Steinhagen, "Forscher, Abenteuer, Retter - die Spitzbergenexpedition von Kurt Wegener, Herbert Schröder-Stranz und Theodor Lerner 1912/1913," 51-52.

¹⁵⁰ Lüdecke, "Wissenschaft und Abenteuer in der Arktis, Beispiele deutscher Polarexpedition," 61-64.

Schröder-Stranz expedition are manifold. The main blame for the largest German polar catastrophe was therefore attributed to Schröder-Stranz “who, by overestimating his own abilities and underestimating the dangers, risked so many lives and did little credit to the German name,” as August Petermann explained.¹⁵¹

3.2.6. Max Karl Grotewahl (1894-1958)

Max Karl Grotewahl (1894-1958), a minor explorer himself, contributed more broadly to German polar research through his vision and recognition of the need for an archival institution to promote polar exploration.

In the summer of 1925, the geophysicist Grotewahl led a small expedition to the northwest of Spitzbergen with three team members to carry out geophysical and biological research. Based on his Spitzbergen experience, Grotewahl recognized the need for an institute to collect documents on polar research, prepare new expeditions, and evaluate the results of expeditions. In 1926, he established a private archive for polar research in Kiel.¹⁵² After his death, the archive, which had been run as a private enterprise, came under the oversight of the Geophysical Institute of the University of Münster, Germany. Grotewahl laid the foundation for the society of polar research, but it was the founding of the Alfred Wegener Institute for Polar Research in 1981 that truly institutionalized polar research in Germany.¹⁵³

¹⁵¹ August Petermann, *Mittheilungen aus der Justus Perthes' Geographischer Anstalt*, Ergänzungsheft Nr. 179, H. Philipp, Ergebnisse der W. Filchner'schen Vorexpedition nach Spitzbergen (Gotha: Justus Perthes, 1914).

¹⁵² Cornelia Lüdecke, *Die deutsche Polarforschung seit der Jahrhundertwende und der Einfluss Erich von Drygalski* (München: Kamloth, 1995), 42-45.

¹⁵³ Cornelia Lüdecke, “Zum 100. Geburtstag von Max Grotewahl (1894-1958), Gründer des Archivs für Polarforschung,” *Polarforschung* 65, no. 2 (1995): 105.

3.2.7. Erich von Drygalski (1865 - 1949)

The geographer, geophysicist and polar explorer Erich von Drygalski (1865-1949) led two expeditions to Greenland during the years 1891-1893. Furthermore, Von Drygalski conducted the first German South Pole expedition (Gauß-Expedition in 1901–1903), earning himself international recognition for his polar research.¹⁵⁴ In 1891 and 1892/93 von Drygalski led two expeditions to Western Greenland. During his scientific based overwinter in western Greenland (May 1892 to October 1893) Von Drygalski collected data on climate, inland ice, and glacier movement, which were published in numerous volumes. In 1898 he habilitated in Berlin in geography and geophysics.¹⁵⁵ Subsequently Von Drygalski turned to south polar research, believing that only residual problems remained to be solved in the north.¹⁵⁶ Von Drygalski made a name for himself as the leader of the Gauss expedition, which brought forth many new insights from the little unexplored region and was therefore deemed a great scientific achievement.¹⁵⁷ Drygalski's publications following his expedition to the Antarctica ranked among the fundamental scientific works of all polar literature of the time.

3.2.8. Germany's Greatest Polar Explorer -- Alfred Wegener

3.2.8.1 The scientist Alfred Wegener

The German meteorologist, polar explorer and geoscientist of global dimension Alfred Lothar Wegener (1880 –1930) is best known for his theory of continental drift, his greatest contribution to science. In addition, he earned recognition as a polar explorer. He conducted four expeditions to Greenland, bringing back numerous scientific results. His four expeditions concluded

¹⁵⁴ Lüdecke, *Die deutsche Polarforschung seit der Jahrhundertwende und der Einfluss Erich von Drygalski*, 34-38.

¹⁵⁵ Cornelia Lüdecke, *Verborgene Eiswelten. Erich von Drygalskis Bericht über seine Grönlandexpeditionen 1891, 1892-93* (München: Dreesbach Verlag, 2015).

¹⁵⁶ Lüdecke, *Die deutsche Polarforschung seit der Jahrhundertwende und der Einfluss Erich von Drygalskis*, 51.

¹⁵⁷ Lüdecke, *Die deutsche Polarforschung seit der Jahrhundertwende und der Einfluss Erich von Drygalskis*, 73.

Germany's heroic polar exploration age. Wegener carried out the last great Arctic expeditions in the classical style, a style in which a man's moral and physical strength - or weakness - determined and limited the success of an expedition, whereas technical aids played a subordinated role.¹⁵⁸ Wegener's expeditions marked the zenith of German polar exploration. He certainly ranks as Germany's most heroic figure in polar history, remembered for risking his life to rescue his comrades.

Alfred Wegener was born in Berlin on November 1, 1880. After graduating at the top of his high school class, he studied numerous disciplines, such as physics, astronomy, and meteorology, at universities in Berlin, Heidelberg and Innsbruck. He earned a doctorate in astronomy in March 1905 at Humboldt University in Berlin.¹⁵⁹ In addition to the study of physics, the young scientist pursued research on the higher layers of the atmosphere. He conducted several balloon flights, some with his brother Kurt, who also developed an interest in meteorology and polar research. On April 5, 1906, the two brothers achieved a new world record in ballooning by remaining aloft for 52.5 hours, while also undertaking meteorological investigations.¹⁶⁰

In 1910 Andree's Atlas¹⁶¹ attracted Wegener's attention. Not only the congruency of the continents' margins, but also the oceanic depth contours circumscribing the continental maps of South America and Africa intrigued him.¹⁶² In 1912 Wegener gave a lecture and published several articles arguing that the continents had gradually drifted apart. The American geologist

¹⁵⁸ Johannes Georgi, *Im Eis vergraben. Erlebnisse auf Station „Eismitte“ der letzten Grönland-Expedition Alfred Wegener 1930-1931* (Leipzig: Brockhaus Verlag, 1955), 13.

¹⁵⁹ Ulrich Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener* (Gotha: Justus Berthes Verlag, 1997), 15-22.

¹⁶⁰ Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener*, 24-25.

¹⁶¹ Andree's hand atlas was a major cartographic work using copper plate engraving, named after Richard Andree.

¹⁶² Mott T. Green, *Alfred Wegener, Science, Exploration, And the Theory of Continental Drift* (Baltimore: John Hopkins University Press, 2015), 215.

Frank Burley Taylor had arrived independently at similar views a few years earlier. Nevertheless, Wegener's theory touched off a global scientific controversy and was initially met with skepticism from geologists, who viewed Wegener as an outsider. In 1915 Wegener published a book *The Origin of the Continents and Oceans* (*Die Entstehung der Kontinente und Ozeane*), which laid the foundation for modern plate tectonic theories.¹⁶³ Despite the significance of this scientific contribution, Wegener did not pursue this research further. Instead he turned his attention to further Arctic exploration.

3.2.8.2. The Greenland Expeditions

Wegener's famous balloon flight provided him an entree into polar exploration. In 1906, he participated in the Greenland expedition led by the Dane Ludvig Mylius-Erichsen, who hired Wegener as meteorologist and physician. This first polar expedition served as an important learning experience for Wegener, providing him insight into technical and logistical challenges in conducting research in the Arctic. Wegener took part in the first sledge expedition led by Europeans during the polar night.¹⁶⁴ Following his return, in 1908 Wegener decided to continue his career in academia. The University of Marburg appointed him lecturer in meteorology, applied astronomy and cosmic physics.¹⁶⁵

In 1911 Johann Peter Koch, who had participated in the first Greenland expedition with Wegener, proposed another Greenland expedition: exploring the unknown ice sheet of inner Greenland. This would require an overwintering on the edge of the ice sheet, followed by a crossing at its broadest point. The expedition would answer decisively the question of whether

¹⁶³ David Thomas Murphy, *German Exploration of the Polar World: A History, 1870-1940* (London: University of Nebraska Press, 2002), 129.

¹⁶⁴ Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener*, 38.

¹⁶⁵ Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener*, 72.

inner Greenland was completely covered with ice. The distance of the crossing stretched 1,000 km (621 miles), twice as long as the crossing of south Greenland conducted by Fridtjof Nansen in 1888.¹⁶⁶

The four-man expedition left June 14, 1912 and suffered danger and hardship. Calving glaciers nearly killed the entire team; as they attempted to ascend to the inland ice cap, temperatures dropped to -50°C (- 58°F); Koch fractured a leg; the sun burned their skin; and the horses perished. The team suffered continual drenched clothing, exhaustion, cold and frostbite.¹⁶⁷ In July 1943 the Danish pastor Chemnitz of Upernavik, who just happened to be visiting the remote community at the time, found the exhausted group close to the village. The trek represented a milestone in Arctic travel.¹⁶⁸ Greene calls the journey “one of the most heroic stories of polar exploration.”¹⁶⁹ The feat increased Wegener’s international reputation as a polar traveler and scientist, and it produced numerous volumes of scientific work.¹⁷⁰

Buoyed by the success of the second Greenland expedition, Wegener planned additional expeditions to Greenland. First, he planned a preparatory summer trek in 1929 followed by a full year expedition in 1930-31. With the full year journey, Wegener aimed to establish three stations across Greenland at latitude 71° north. Most importantly, Wegener planned to measure the full ice cap thickness, thereby enabling a survey on the dynamics of ice sheets for the first time ever. The primary station would be located on the western rim of the ice sheet, with another station on the eastern rim, and an “Ice Central” station located hundreds of meters above sea level, four hundred kilometers from each coastal station. The team would thereby obtain

¹⁶⁶ Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener*, 87.

¹⁶⁷ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 306; Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 129.

¹⁶⁸ Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 130.

¹⁶⁹ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 221.

¹⁷⁰ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 312-313.

comparative readings for an entire year for the first time. The most difficult logistical obstacle would be the transport of equipment, scientific instruments, fuel, food, and building material across the Greenland ice cap at nearly three kilometers (1.86 miles) altitude.”¹⁷¹

Wegener submitted his plans to the Emergency Society for German Science (Notgemeinschaft).¹⁷² In the wake of the New York Stock Exchange crash of 1929, German scientific ideals, nationalism, and cultural values convinced the committee to support the Greenland expedition. As historian David Thomas Murphy wrote, the Notgemeinschaft financed Wegener’s expeditions because “German absence from the polar competition meant surrendering the nation’s place among the great peoples.”¹⁷³ Wegener himself wanted to display Germany’s technological achievement. He emphasized that Germany had a chance to take the lead in the use of propeller-driven sleds, an innovative technical aid in polar exploration. Wegener promoted the expedition as vital to Germany’s interests in participating in international polar research, rather than standing aside. Germany’s expedition to Greenland would be the first land-based scientific effort outside Germany since an Antarctic expedition in 1912.¹⁷⁴ Wegener harbored additional motives for undertaking this expedition: his personal ambitions and fascination with Greenland, as well as his interest in science, economic gain and national prestige.¹⁷⁵ The crew, who conducted the preparatory expedition from April until early October 1929 comprised of Wegener, Georgi, Ernst Sorge, Fritz Loewe, Johan Davidson and seven hired Greenlanders. The main aim of this expedition was to find a way onto the inland

¹⁷¹ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 561.

¹⁷² The Notgemeinschaft der Deutschen Wissenschaft (Emergency Association of German Science) was founded in 1920 and was renamed in 1929 Deutsche Forschungsgemeinschaft (German Research association). The basic idea was to facilitate raising and distributing funds for German sciences and humanities.

¹⁷³ Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 135.

¹⁷⁴ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 542.

¹⁷⁵ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 541; Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 135.

ice, to test methods of measuring ice thickness, as well as food and equipment. They returned with their aims accomplished.”¹⁷⁶

On April 1, 1930 Wegener launched his fourth and final Greenland expedition from Copenhagen, Denmark.¹⁷⁷ Once the expedition went ashore in West Greenland, they faced the logistical challenge, never attempted in a polar region before, of moving the equipment onto the inland ice. By the end of August, the crew had tested the propeller sleds. Wegener’s detailed diary entries from August and September 1930 capture the enthusiasm and drama surrounding the difficulties expedition members faced. On the one hand Wegener believed the expedition represented a new age, a new epoch of polar exploration. In August 30, 1930, he wrote in his journal: “Yes, and now the dream has become reality...but I have the strong feeling that we are approaching a new era of polar exploration characterized by the successful utilization of new technologies in a rational manner... This new method is surely the future of polar exploration. How wonderful that we are the ones who get to make these ground-breaking... redeeming steps!”¹⁷⁸ The propeller sleds occupied a central role in the achievement of the expedition’s goals. However, the sleds proved to have limited capability; the motors were too weak to propel the sleds to high terrain.¹⁷⁹ The failure of the propeller sleds seemed to foreshadow the failure of the mission in general.

In October 1930 Wegener, along with Loewe and Rasmus Villumsen, traveled from the western station to visit Georgi and Sorge at Ice Central and supply the station with the food they would need to overwinter. Loewe, who had lost several toes due to frostbite on the trip to Ice Central,

¹⁷⁶ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 564-565, 568, 569, 572.

¹⁷⁷ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 578-579.

¹⁷⁸ Christian Kerth, “The Wegener Diaries: Scientific Expeditions into the Eternal Ice,” *Virtual Exhibitions*, no. 2. Bavarian State Ministry of Sciences, Research and the Arts (2013), accessed January 2018, <http://www.environmentandsociety.org>, Expedition 1930-1931.

¹⁷⁹ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 582-586.

stayed with Georgi and Sorge at the station, as he was unable to return. The five men celebrated Wegener's fiftieth birthday on November 1, and the same day, Wegener and Villumsen departed with sleds and seventeen dogs for the station on the west coast. The men knew they had too little food for five men to overwinter in Ice Central. As winter approached and temperatures dropped, Wegener and Villumsen raced for their lives toward the west coast. They never reached the western station. Wegener collapsed, presumably of a heart attack caused by the immense stress of skiing at high altitude. Villumsen buried Wegener, took his diaries with him and disappeared into the ice. His body has never been found.¹⁸⁰ Wegener's men continued their work to its scheduled conclusion in August 1931. Kurt Wegener traveled to Greenland to oversee the completion of his brother's work.¹⁸¹

In scientific terms the expedition was a great success. His final expedition provided the first measurement of the thickness of the Greenland inland ice, as well as important details on the composition of the Arctic atmosphere. Wegener and his team also were the first to cross Greenland at its widest point. Furthermore, his team achieved the first overwintering on the inland ice, exploring the hitherto unknown northeastern part of Greenland. After his fourth expedition, for the first time, climatological cross-sectioning up to high altitude terrain could be determined with a full year of meteorological and glaciological measurements. Wegener conducted the first long-term study ever in Greenland, collecting valuable data from the depths of the ice. Wegener also was among the first to identify correctly the formation of tornados.¹⁸² He had wanted to revolutionize climate research, and he inaugurated kite and balloon flights in pursuit of polar climate research. Nearly a half century passed before Wegener's continental drift theory became the foundation of modern plate tectonic theory. His thoughts on the

¹⁸⁰ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 586-593.

¹⁸¹ Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 147.

¹⁸² Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 600-601.

formation of planets so preceded his time that he received little credit for his work in this field.¹⁸³

3.2.8.3. Wegener's Legacy

Alfred Wegener devoted his entire life to research and science. Wegener's expeditions marked the end of the great age of heroic exploration. He ranks with the other great Arctic explorers who died in the midst of their polar work: Sir John Franklin, Roald Amundsen, Robert Scott, and Ernest Shackleton.

Although glaciology, meteorology and geology meant little to the German public, Wegener's heroic death made him an instant international celebrity. Murphy wrote of the accolades he received: "Both Greenland expeditions attained a level of international acclaim for German polar research that had neither precedent nor successor. Wegener, more than any other German, has left a lasting impression on the global image of the polar explorer."¹⁸⁴ The expeditions claimed great scientific achievements. Wegener was epochal, achieving numerous breakthroughs in the North and leaving a lasting impression on the international world of polar exploration. German national pride surged with Wegener's achievements in the harsh and dangerous Arctic environment. Not only had Germany reentered the polar competition after so many years of absence, but it now ranked with the leading exploring nations.¹⁸⁵ The expedition marked the revival of German Arctic exploration.

On February 22, 1908 Wegener noted in his diary: "I came up with the following idea today: if a money man wanted to spend millions on polar research, he would best do so in the form of a

¹⁸³ Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener*, 226.

¹⁸⁴ Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 148-149, 153.

¹⁸⁵ Murphy, *German Exploration of the Polar World: A History, 1870-1940*, 135.

foundation. He would have to found an institute for polar research.”¹⁸⁶ Today the German institute for Polar and Marine Research (Alfred-Wegener-Institut Helmholtz Zentrum für Polar- und Meeresforschung) honors his achievements. In Greenland four locations bear his name: “Alfred Wegener Peninsula,” just to the north of the Kamarajuk Glacier in Greenland; “Wegener’s Peninsula,” on the Jameson Land on the eastern coast of Greenland; “Cape Wegener,” which lies close to Peary Land in the north of Greenland; and the “Wegener Islands” in the Ingolf Fjord on the northeast coast. Furthermore, the “Wegener crater” on the moon attests to Wegener’s contributions to atmospheric science.¹⁸⁷ The March 29, 1999 issue of *Time* magazine ranked Wegener among “the 100 greatest minds' of the 20th century.”¹⁸⁸

3.2.9. Zeppelin’s Polar Journey

The story of the Zeppelin expedition to the Arctic in 1931 reflects the business interests of an individual, German national interests in restoring national pride during the traumatic years of the Weimar Republic following the Great War, and national interest in scientific advancement. The Zeppelin expedition marked Germany’s first expedition into the Arctic by air.

¹⁸⁶ Reinhard A. Krause, *Alfred Wegener (1880-1930). Tagebuch vom 24. Juni 1906 bis zum 6. August 1908 mit sieben Anhängen geführt während der dänischen Nordost-Grönland-Expedition (Danmark-Expedition) unter der Führung von Ludvig Mylius-Erichsen (1872-1907)*, accessed January 2018, <http://hdl.handle.net/10013/epic.48063>. Translated by author, 265 – 266.

¹⁸⁷ Green, *Alfred Wegener, Science, Exploration, and the Theory of Continental Drift*, 596; Wutzke, *Durch die weiße Wüste, Leben und Leistungen des Grönlandforschers und Entdeckers der Kontinentaldrift Alfred Wegener*, 226.

¹⁸⁸ Alfred Wegener, accessed February 2018, <https://archiv.uni-graz.at/de/geschichte/groessen-der-wissenschaft/alfred-wegener>.

3.2.9.1. The Count of Zeppelin (1838 – 1917)

Ferdinand Adolf Heinrich August Count of Zeppelin (Graf von Zeppelin) was an aircraft manufacturer who founded the Zeppelin airship company.¹⁸⁹ The first successful Zeppelin flight took place on July 2, 1900 with the *Airship Zeppelin- LZ1* (Luftschiff Zeppelin 1) over Lake Constance near Friedrichshafen in southern Germany. As he worked to improve his airships technologically, the Count of Zeppelin began to consider the use of airships for scientific and geographical research in the Arctic. In 1910 Zeppelin conducted several exploratory journeys to Spitzbergen to study the usefulness of an airship in the Arctic. Members of the Ministry of the Interior, Erich von Drygalski, Hugo Hergesell, Prince Heinrich of Prussia and others accompanied Count Zeppelin.¹⁹⁰ These preparatory expeditions demonstrated to Zeppelin the feasibility of his airships in the Arctic.

3.2.9.2. Aeroarctic

In 1919 Walther Bruns (1889-1955), a retired Zeppelin captain, acted upon the Count of Zeppelin and his predecessors' idea to use the airship as a means of transportation between Europe and the Pacific by the shortest trans-Arctic route. His motive was more economic than scientific. Bruns invited a group of interested aviation specialists, technicians, and scientists to form a committee to examine the possibility of an airship traffic route, which led to the formation of the "International Study Society for the Exploration of the Arctic by Airship" (Internationale Studiengesellschaft zur Erforschung der Arktis mit Luftfahrzeugen), better known as *Aeroarctic*, in 1924. He attracted the most prominent domestic and foreign scientists and engineers to this society, eighty-three signatories representing twenty-two countries. The founding president was the Norwegian Fridtjof Nansen, one of the world's best-known Arctic

¹⁸⁹ The term Zeppelin refers to airships manufactured by the German Zeppelin Company, which constructed and operated the first rigid airship.

¹⁹⁰ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 109.

explorers, and a recent Nobel Peace Prize laureate. Bruns himself acted as general secretary.¹⁹¹ The *Aeroarctic*'s main goal was Arctic research with the use of an airship. When *Aeroractic* was founded, Germany was excluded from the League of Nations¹⁹² and was going through difficult economic times. Therefore, Germans welcomed any opportunity to cooperate with other states as a step forward to end German isolation after World War I.¹⁹³

Nansen approached Hugo Eckener in 1928 with the proposal to use the airship *Graf Zeppelin*, named after the company's founder, for an Arctic expedition.¹⁹⁴ After Nansen's sudden death in 1930, Eckener succeeded him as president of the *Aeroarctic* society. Eckener revived Germany's interest in the Zeppelin project and can therefore be called the "protector of the Zeppelin legacy,"¹⁹⁵ the most influential and responsible person for the realization of the Zeppelin flights to the pole.

Eckener felt a moral obligation towards Nansen to continue the Arctic Zeppelin project, but he lacked the financial means.¹⁹⁶ Eckener therefore gave lectures throughout Germany to raise money for the Arctic journey. In promoting his project, Eckener turned the expedition into a marketing tool, and believed that "science had to be served, but it could serve as well."¹⁹⁷ Finally the Australian Arctic explorer Sir Hubert Wilkins offered a plan. Wilkins wanted to take the submarine *Nautilus* from Spitzbergen to the North Pole, surface at the Pole and make

¹⁹¹ Ludwig Kohl-Larsen, *Die Arktisfahrt des „Graf Zeppelin“, Im Auftrag der internationalen Gesellschaft zur Erforschung der Arktis mit Luftfahrzeugen (Aeroarctic)* (Berlin: Union Deutsche Verlagsgemeinschaft, 1931), 13.

¹⁹² An organization founded after World War One to maintain world peace.

¹⁹³ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 113.

¹⁹⁴ Hugo Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen* (München: Mobiles Verlag, 1949), 198.

¹⁹⁵ Guillaume de Syon, *Germany and the Airship, 1900 - 1939* (Baltimore: The John Hopkins University Press, 2002), 147.

¹⁹⁶ Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen*, 198.

¹⁹⁷ David H. DeVorkin, *Race to the Stratosphere: Manned Scientific Ballooning in America* (New York: Springer, 1989), 3.

contact with the airship. The proposal drew the support of the American Hearst press, which funded the activities of the airship. Eckener signed a deal with William Randolph Hearst.¹⁹⁸

“If the airship and the submarine succeed in getting to the North Pole and in exchanging passengers and mail, the Hearst Cooperation will pay \$150,000 for reporting rights on board the airship. If the airship and the submarine merely succeed in meeting at the North Pole, the Hearst Cooperation will pay \$100,000. On the other hand, if there is merely a meeting somewhere in the Arctic, the cooperation will merely pay \$30,000.”¹⁹⁹

The signing of the agreement generated tremendous publicity, but technical difficulties kept the *Nautilus* from participating in the expedition. Hearst nevertheless remained interested in the Arctic project and the parties altered the agreement to support a meeting between the airship and the large Russian icebreaker *Malygin*. The Russian government agreed both to the encounter and an exchange of mail.²⁰⁰

On July 24, 1931, the airship *Graf Zeppelin (LZ-127)* left Berlin for a one-week flight. The Zeppelin traced the following route: Berlin - Leningrad-Arkhangelsk - Franz Josef Land - Severnaya Zemlya - Taimyr Peninsula - Novaya Zemlya - Arkhangelsk – Berlin. The airship carried a team of scientists from Germany, the United States, the Soviet Union, and Sweden. Hugo Eckener commanded the flight, with the Russian Professor Rudolf Lazarevich Smolovich serving as the scientific leader of the expedition. Thirty-six hours after departing from Leningrad, the *Graf Zeppelin* sighted the Russian ice breaker *Malygin* at Franz-Josef-Land. The encounter took place and mail was exchanged in a matter of twenty minutes, due to

¹⁹⁸ Hearst was newspaper publisher and founder of the largest newspaper chain and media company.

¹⁹⁹ Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen*, 200.

²⁰⁰ Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen*, 198-203.

Eckener's growing concerns regarding ice drift and approaching icebergs. After the encounter, the principle scientific tasks of the expedition began: meteorological observations in the Arctic, including the launching of several radiosondes, measuring variation in the earth's magnetic field; mapping and geographic exploration of previous unknown or poorly charted Arctic areas such as the islands of Severnaya Zemlya and Novaya Zemlya; and photographing unmapped regions using a special panoramic camera.²⁰¹

In just eight days, rich scientific material had been gathered under calm and quiet conditions, data that otherwise might have been collected only by several expeditions in at least two years of strenuous work.²⁰² The geographic results changed the map of the Arctic region with the information obtained during the flight. The Arctic was now so thoroughly mapped that for the first time a complete picture of the region had emerged. Politicians described the expedition "as a triumph of science and technology." Further they stated that the airship was a symbol of "a new German rise, that was achieved through hard will."²⁰³

The Zeppelin expedition to the Arctic contributed not only to numerous scientific discoveries, but also to the symbolic value of the airship by providing hope and a new sense of German national pride. "Technological achievement thus came to represent a measure of the German soul, the product of hard work, relentlessly carried forward despite difficult conditions," wrote historian Guillaume de Syon. The limits of scientific knowledge were extended and obstacles were proven to be "political and not technological."²⁰⁴

²⁰¹ Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen*, 198-203.

²⁰² Kohl-Larsen, *Die Arktisfahrt des „Graf Zeppelin“, Im Auftrag der internationalen Gesellschaft zur Erforschung der Arktis mit Luftfahrzeugen*, 195.

²⁰³ Kohl-Larsen, *Die Arktisfahrt des „Graf Zeppelin“, Im Auftrag der internationalen Gesellschaft zur Erforschung der Arktis mit Luftfahrzeugen*, 194. Translated by author.

²⁰⁴ de Syon, *Germany and the Airship, 1900 – 1939*, 168.

3.2.9.3. Germany's interests in the airship flights to the Arctic

Some consider the Zeppelin's flight to the Arctic one of Germany's most successful expeditions since 1870.²⁰⁵ The Zeppelin journey brought home numerous scientific results with little financial support, no technical or logistic difficulties, and no threat to the lives of any of the crew members. The Zeppelin proved itself to be a flying research station able to cover long distances. From the beginning, scientists and political figures considered the airship a scientific breakthrough and therefore a demonstration of Germany's potential for scientific achievements. The German public, on the other hand, neither understood nor appreciated the scientific achievements, nor did the majority understand the scientific aims of the expedition. The German public viewed the effort as the resurrection of the Zeppelin program and a symbol of national pride and strength.

Eckener himself emphasized that the German population remained faithful to the "thought of Zeppelin" and that the airship had a political value and meaning. He therefore said that the Zeppelin fulfilled an "inner mission."²⁰⁶ On the other hand, Eckener's primary interest was technological advancement in aviation. As a businessman, he wanted the airship factory to thrive. Therefore, his primary goal was the development and advancement of the airships, as opposed to the furthering of other fields of science.²⁰⁷ Eckener thus pursued scientific achievements to further his business interest in the Zeppelin program. He knew that scientific achievements were necessary to garner funding for the expedition; science therefore was a necessary by-product of his efforts. But for Eckener, "technological power took priority over scientific endeavor," according to Syon.²⁰⁸

²⁰⁵ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, 125.

²⁰⁶ Eckener, *Im Zeppelin über Länder und Meere, Erlebnisse und Erinnerungen*, 220-221.

²⁰⁷ de Syon, *Germany and the Airship, 1900 - 1939*, 166.

²⁰⁸ de Syon, *Germany and the Airship, 1900 - 1939*, 156.

The project also claimed an international character owing to all the scientists from different countries who participated in the project. The fact that other countries, such as Russia, joined together in a scientific expedition, shortly after World War I, certainly helped to raise Germany's image and reputation around the world. The Zeppelin expedition to the Arctic thus reflects a mixture of political interest in uniting the nation and raising Germany's stature in the world, Eckener's economic self-interests in keeping the factory running, popular fascination with the project, and interest in scientific progress.

3.2.10. Germany's Interest in the Arctic during World War II

With the outbreak of World War II in Europe, the Arctic, although seemingly peripheral, took on great strategic significance for both the Allies and the Axis Powers. A large number of ships traversed the North Atlantic; therefore, the need for meteorological information to predict weather patterns increasingly gained importance.

The German occupation of Norway began on April 9, 1940. Germany quickly overran the neutral Norway and continuously occupied the country until the war's end. Operation "Weser Exercise" (Weserübung) was conducted with little resistance, although the Royal Norwegian Navy destroyed and sank several German ships. The occupation of Denmark met with even less resistance and took effect within twenty-four hours.²⁰⁹

One of the reasons for the German invasion of Norway was the occupation of a number of Norwegian airfields, which would be vital to the German air force's aims in the North Atlantic. Germany also wanted to secure the many ice-free harbors on Norway's coast. Furthermore, Germany wanted to protect the ore fields and secure the transport by rail of iron ore and other

²⁰⁹ Martin Kitchen, *A history of modern Germany 1800 to the Present* (Chichester, United Kingdom: Wiley-Blackwell, 2006), 285.

minerals from northern Sweden through Narvik, Norway; access to these minerals was vital to Germany's war economy.²¹⁰ Occupation of Norway would also serve Hitler's aims of expanding the Aryan race; he sought to incorporate Norwegians into the Greater German Reich.²¹¹ From the German perspective, the naval war in the Arctic was part of the war on the eastern front.

3.2.10.1. The Weather War

Aside from Germany's occupation of Norway, another war took place in the Arctic - the weather war. The outbreak of World War II in 1939 severely restricted the free international exchange of weather data between adversaries. Atmospheric conditions in the Arctic shape weather patterns in Europe and the Atlantic; therefore, both the Allies and Germany continually observed weather conditions in the Arctic. As the war progressed, each side needed weather reports from areas now under enemy control. Long-range forecasts helped the militaries to plan and execute operations and engagements at sea and on the European mainland. Without the weather data from the Arctic, the belligerents' air and naval operations would have been stymied. Thus, the Arctic, which had hitherto been peripheral to the theaters of war, gained strategic importance.²¹²

Germany's Naval Meteorological Service (Marine-Wetterdienst) and Weather Service of the Air Force (Wetterdienst der Luftwaffe) conducted its weather operations, relying on long-range weather reconnaissance flights to the Arctic. They also established automatic weather stations

²¹⁰ Christ Mann and Christer Jörgensen, *Hitler's Arctic war. The German campaigns in Norway, Finland and the USSR 1940-1945* (South Yorkshore, England: Pen & Sword, 2002), 32-61.

²¹¹ Mann and Jörgensen, *Hitler's Arctic war. The German campaigns in Norway, Finland and the USSR 1940-1945*, 188.

²¹² Franz Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945* (Hamburg: Convent Verlag, 2001), 15-16, 46.

and small weather observation posts at remote places in the high North.²¹³ Germany launched many of its weather data gathering operations from the northern region of occupied Norway.

With the outbreak of the war and the cessation of regular international weather reports, weather flights became essential.²¹⁴ The Weather Squadron 5 (Wettererkundungsstaffel 5, known as Westa 5) under the command of Captain Oelze and operating out of Trondheim-Vaernes and Banak (Norway) made regular twice-daily flights for the next five years across the Atlantic to Iceland, Greenland, and Jan Mayen.²¹⁵ By November 1943 the Westa 5 had conducted more than 2,000 weather reconnaissance flights to the Arctic.²¹⁶ By the autumn of 1944, severe scarcity of fuel in the Luftwaffe led to curtailment and finally abandonment of the daily weather reconnaissance flights, and the squadrons Westa 5 and 6 disbanded almost simultaneously.²¹⁷

By the summer of 1940, Germany began to use weather ships. Few of these operations succeeded in fulfilling their missions; most failed for a variety of reasons including bad weather or capture by Allied forces. The Germans used fishing trawlers, favored for their presumed ability to escape Allied detection, while at the same time supplying vital meteorological data, but this tactic proved unsuccessful. The escalating threat posed by Allied sea and land forces caused the German military to establish land-based stations that could report the accurate weather data.²¹⁸

In view of the growing Allied surveillance of the Arctic sea and the numerous losses of weather vessels, Hans-Robert Knoespele, chief German meteorologist, suggested the establishment of a

²¹³ Franz Selinger, and Werner Schwerdtfeger, *Wetterflieger in der Arktis 1940-1944, Erlebnisse und Erfahrungen der Wettererkundungs-Staffeln im Hohen Norden* (Stuttgart: Motorbuch Verlag, 1982), 7.

²¹⁴ Selinger and Schwerdtfeger, *Wetterflieger in der Arktis 1940-1944*, 7.

²¹⁵ Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945*, 43.

²¹⁶ Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945*, 221.

²¹⁷ Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945*, 316.

²¹⁸ Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945*, 30-33.

stationary meteorological site on Spitzbergen. The weather stations were code-named with a reference to the leader's name. In 1941, the first station, code-named Knospe (bud in German), after its leader Knoespel, began operations in Spitzbergen.²¹⁹

The German Navy and Air Force (Luftwaffe) secretly established several manned weather stations in East Greenland, Svalbard, Franz Josef Land, and Hopen Island. While these operations involved less risk than many others, numerous lives were lost through both enemy action and accidents.²²⁰ The stations sent regular weather reports until eventually the Allied Forces discovered and destroyed most of the stations. The crews usually managed to escape by U-boat or aircraft; only a few went into captivity or died.²²¹

Against the backdrop of the worsening war situation and threatened resources, which rendered weather forecasting work increasingly difficult, Germany considered the implementation of stationary automatic weather reporting stations. The Navy (Kriegsmarine) developed and deployed both floating weather buoys (Wetterfunkgerät See - WFS) and land stations (Wetterfunkgerät Land - WFL), which were designed to be deployed by U-boats and by landing parties, respectively. At the same time the Luftwaffe deployed only land stations, code-name toad (Kröte). Land units were used either to fill the summer gap between evacuation of one party from a manned station and its re-occupation in the fall, or to provide weather data in an area where a manned station was likely to be discovered.²²²

²¹⁹ Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945*, 67.

²²⁰ Franz Nusser, "Die Arktisunternehmen des deutschen Marinewetterdienstes in den Jahren 1940-1945," *Deutscher Wetterdienst, Seewetteramt, Einzelveröffentlichung*, Nr. 96 (1979): Introduction.

²²¹ Selinger, *Von Nanok bis Eismitte, meteorologische Unternehmungen in der Arktis 1940-1945*, 258-259; Nusser, *Die Arktisunternehmen des deutschen Marinewetterdienstes in den Jahren 1940-1945*, 89-98.

²²² Wilhelm Dege, *War North of 80, The last German Arctic Weather Station of World War II* (Colorado: University Press of Colorado, 2004), 297-301.

Of the forty weather buoys (WFS) the Navy intended to use, up to May 1945, twenty-four units were transported on U-boats, but only fifteen were deployed. The rest were either lost or destroyed on the boats or brought back due to changes in the operational plans or expired storage time. Only three buoys (WFS) were deployed in the Arctic, between Iceland and Novaya Zemlya.

The Luftwaffe deployed thirteen WFL units and seven *Kröte* units between 1942 and 1945. The WFL units were deployed from Labrador to Novaya Zemlya and the Gulf of Bothnia. One of the WFL units, code-named Kurt, was erected in northern Labrador, Canada in October 1943.²²³ After the war, most stations were destroyed by unknown persons or scrapped in the course of clean-up by Norwegian authorities.

The establishment of both floating weather buoys and land-based stations to detect meteorological conditions played a vital role in Germany's abilities to prosecute its war aims. Germany made numerous noteworthy technological advancements during the war,²²⁴ including the development and construction of automatic weather stations, which reached their peak in development by the end of the war. Years later, other countries adopted the use of such German automatic weather stations.²²⁵

3.2.10.2. Scientific advancements

Beginning in 1943, when German stations were accompanied by military personnel, the soldiers developed an interest in doing scientific research, time permitting. They then fulfilled a double function: soldier and scientist. Their contribution to the war effort was immense. Nevertheless,

²²³ Dege, *War North of 80, The last German Arctic Weather Station of World War II*, 297-301.

²²⁴ Nusser, "Die Arktisunternehmen des deutschen Marinewetterdienstes in den Jahren 1940-1945," 69.

²²⁵ Franz Selinger, "Deutsche automatische Wetterstationen in der Arktis 1942-1945." *Mitteilungen: Polarforschung* 55, no. 1 (1985): 67.

they knew that they would not come home with glory and fame, and the general public would hardly take notice of their expeditions. They fought a different kind of war - the weather war. Despite their discovery, the manned operations can be considered successful in reporting weather observation and in planning, organizing, establishing and operating these remote weather stations.

The interests of the German government and the scientists who manned the weather stations in the Arctic differed. The government sought weather reports for the strategic planning. Individuals, on the other hand, fulfilled their duties in the far North by operating weather flights and stations, but they pursued additional scientific interests in the region, including geological, microclimatic, ice, and geomagnetic research, as well as research on Northern Lights.²²⁶

From a scientific point of view, groundbreaking achievements took place in the Arctic during the war. German scientists and technicians gathered data in greater density and integrity from these remote areas than had previously been collected, however most data were lost during and after the German surrender.

The broader public only learned after the war of the achievements of engineers, meteorologists, sailors, and pilots involved in the development and use of the weather stations during the war. The war in the Arctic is often called the secret weather war; it was so secret, that quite a few automatic stations were discovered only decades after the war.

²²⁶ Nusser, *Die Arktisunternehmen des deutschen Marinewetterdienstes in den Jahren 1940-1945. Deutscher Wetterdienst*, 113.

3.2.11. Conclusion

Historian David Murphy asserts that German polar history represents each of the four German political systems. There was the competitive multi-stage Germany of the pre-unification, the aggressive and powerful Wilhelmine Reich, the pluralistic and international Weimar democracy of the interwar period and the Third Reich of Hitler and Nazi Germany.²²⁷ German polar explorers tried during each of these eras to establish their country as a leading exploring nation.

While the century of whaling in the Arctic represented primarily the pursuit of economic aims, Germans also exhibited the urge to compete with other great seafaring nations. The German nation, which was very fragmented and lacked power and naval force, could only enter the field of polar research at a late stage. When the first German expeditions left for the far North in 1868, Germany was under the rule of the Prussian Otto von Bismarck and King Wilhelm I. After the Prussian imperial wars, German territories were unified into a single German state in 1871. This newly founded Germany inflamed nationalist feelings throughout the country. Petermann took advantage of this new awakening by emphasizing German virtues, nation-building and new national identity to garner support for the First German North Polar Expedition. The era of Koldewey and the first German Arctic exploration served as character formation, gaining Arctic experience, and pursuit of scientific progress. Alfred Wegener represented the heroic age of polar exploration. After his tragic death, he became Germany's most famous polar hero and demonstrated that Germany could withstand the international competition of polar exploration.

²²⁷ Murphy, *German Exploration of the Polar World, A History, 1870-1940*, preface.

After World War I Germany was isolated, a significant setback from a science point of view. The Weimar Republic experienced peace settlements with reparations and the surrender of German territories. Polar exploration seemed to move into the distance. Most Germans felt little enthusiasm for the new Weimar Republic, which failed to restore to the nation stability and economic vitality. In this context, many Germans looked to aviation, as exemplified by the Zeppelin, to express their nation's technological potential. The establishment of the International Society for the *Aeroarctic* led to international promotion of the Zeppelin exploration in the Arctic. By the time Hitler's Germany pursued his aims in the polar regions, science had become the most valuable German polar tradition.

Thus, from beginning of German polar exploration in 1860s to present, the pursuit of science has shaped the character of national expeditions. Science has been more than data gathering on expeditions with other aims; often the pursuit of science was the primary goal. German initiatives in the Arctic have played no small part in the history of science in the region and in the international cooperation that characterizes research in the region today. Today international pooling of resources, sharing of responsibility, exchange of information, and division of labor exemplify research in the Arctic.

3.3. After World War II

3.3.1. Introduction

Only a few years after the end of the Second World War, the United States and the USSR formed a western and an eastern alliance system, NATO and the Warsaw Pact, respectively. Due to their close proximity in the Arctic, the United States and the USSR faced each other directly with their nuclear weapons during the Cold War era. In the 1980s, significant political changes in the USSR, such as new leadership in the Kremlin, openness to economic

restructuring and increased political freedom paved the way for a more open Arctic. Mikhail Gorbachev's eagerness to begin a new era of peaceful relations with the West, most clearly expressed in his Murmansk speech in 1987, opened up the eastern part of the region and allowed for the first time the prospect of international cooperation, collaboration and common polar research.

After the Second World War, the Federal Republic of Germany slowly resumed polar research, with individual scientists conducting research through their personal relationships and contacts with foreign researchers. Investments in polar infrastructure made sense only on a long-term perspective, and German scientists simply could not amass the necessary resources in the immediate post war era. Consequently, West German polar researchers's ambitions generally failed during this era.²²⁸

3.3.2. Stauferland Expedition

However, between 1959 and 1967 Julius Büdel, a West-German geographer with a focus on geomorphology, conducted three expeditions to Spitsbergen (Barentsøya - Edgeøya) to investigate the influence of climatic conditions on landscape design. He belonged to the old family of the "Staufer" and therefore named the expeditions the "Stauferland Expeditions." The project included a pre-expedition with three companions in 1959, and two main expeditions with a total of twenty-five participants in 1960 and 1967, generously funded by the German Research Association. The Stauferland Expeditions were the first genuinely German forays into the polar region in the post-World War II era.²²⁹

²²⁸ Klaus Fleischmann, *Zu den Kältepolen der Erde - 50 Jahre deutsche Polarforschung* (Bielefeld: Delius, Klasing & Co. KG, 2005), 160.

²²⁹ Carl Troll, "Julius Büdel und die moderne Geomorphology. Eine Würdigung seines Werkes anlässlich seines 70. Geburtstages," *Erdkunde*, Band 27, Heft 4 (1973).

3.3.3. Germany in the field of international scientific research

3.3.3.1. International Year of Geophysics (1957-1958)

The International Year of Geophysics (IGY) in 1957-1958, now recognized as the Third Polar Year, marked a fundamental turning point for German polar researchers: the IGY was a worldwide international joint venture of all fields of geosciences. The ambitious program allowed German scientists to rejoin the international community of polar researchers.

Under the IGY flag, West German researchers participated in a first truly international research project, the EGIG-I 1957/1960 (Expedition Glaciologique Internationale au Groenland) under French leadership together with France, Denmark, Austria and Switzerland. The project aimed to measure the dynamics and the mass balance of the Greenland inland ice. While France provided the entire expedition logistics, the scientific program was distributed, with the German groups taking geodetic and geophysical measurements. At EGIG-II 1967/1968, ice thickness measurements were carried out, as in Alfred Wegener's time, but with significantly improved logistics. The EGIG expeditions were important milestones which slowly brought German polar research back into the international polar research community and gave young scientists a chance to gain their first polar expedition experience.²³⁰

German undertook several Antarctic expeditions and participated in international Antarctic research programs, such as the Biomass program.²³¹ This promising and successful cooperation in Antarctica was politically implemented in the Antarctic Treaty, which has been in force since 1961 and regulates peaceful cooperation between the states in this region. They were also the prerequisite for East German researchers to gradually become involved in polar research as

²³⁰ Reinhard A. Krause, "Daten statt Sensation. Der Weg zur internationalen Polarforschung aus einer deutschen Perspektive," *Berichte zur Polar- und Meeresforschung* 609 (2010): 88-89.

²³¹ Biological Investigations on Marine Antarctic Systems and Stocks.

guest scientists on Soviet Antarctic expeditions. Both German states joined the Antarctic Treaty with a time lag of several years (GDR 1974, FDR 1979) and achieved consultative status in reverse time lag (FRG 1981, GDR 1987).²³²

3.3.3.2. The Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung

In 1979 the West-German cabinet approved the establishment of a polar research institute in Germany, an important milestone in German polar research. Ultimately, the driving force was a foreign policy objective: the admission of the FRG to the consultative round under the Antarctic Treaty. To achieve consultative status, a comprehensive Antarctic research program was needed as well as permanent contribution to Antarctic research. Only as a member of the Antarctic Treaty is it possible to participate actively in the design and definition of future activities.²³³ For the first time in history Germany now established an institutionalized long-term polar research program. The Alfred-Wegener-Institute for Polar Research, today Alfred-Wegener-Institut Helmholtz Centre for Polar and Marine Research (AWI), was founded in 1980 as a national scientific center for polar research. With the foundation of the AWI in Bremerhaven in 1980, the completion of the Georg von Neumayer Research Station on the Ekström Ice Shelf in Antarctica in March 1981 and the commissioning of the ice-breaking research and supply vessel *Polarstern* in December 1982, Germany fulfilled the prerequisites for consultative status under the Antarctic Treaty.²³⁴

The AWI today is the national center for German Arctic and Antarctic research. It is responsible for the scientific tasks of multidisciplinary polar and marine research, the coordination of German polar research and its logistical support on a national and international level. With the

²³² Deutsche Forschungsgemeinschaft, "Polarforschungsagenda 2030. Status und Perspektiven der deutschen Polarforschung," *Deutsches Nationalkomitee SCAR/IASC* (2017): 8.

²³³ Fleischmann, *Zu den Kältepolen der Erde - 50 Jahre deutsche Polarforschung*, 28, 190.

²³⁴ Fleischmann, *Zu den Kältepolen der Erde - 50 Jahre deutsche Polarforschung*, 76-81.

opening of the Arctic regions to the international community in the mid-1980s, German research programs were expanded to include Arctic issues and the establishment of corresponding research stations. The Koldewey Station in Ny-Ålesund on Spitsbergen, founded in 1991, has been operated by the AWI together with the French Institute Paul Emile Victor (PEV) as an extensive Arctic research base since 2003. The German-Russian research station Samoylov Island, established in 1998, is mainly dedicated to permafrost research in the Lena Delta. Furthermore, the AWI's research platforms include the above-mentioned vessel *Polarstern* and the two-research aircraft *Polar 5* and *Polar 6*. The AWI supports initiatives to further international cooperation in logistics, in order to improve access and joint operation of research stations in polar regions. For almost thirty years the German polar research program with its infrastructure is closely internationally linked. It has contributed to major research programs and holds a significant share of the current in-depth understanding of the role of the polar regions within the Earth system.²³⁵

3.3.3.3. GDR (German Democratic Republic)

Research of the GDR, or East Germany, mainly focused on Antarctica. From 1959 scientists from the GDR participated in Soviet Antarctic expeditions as guest scientists. Their participation was organized by the National Committee for Geodesy and Geophysics of the GDR. In 1969 the Central Institute for Physics of the Earth in Potsdam took over the organization of Antarctic research and in 1974 the GDR joined the Antarctic Treaty. In 1976 the GDR founded the Georg-Forster-Station near the Russian station Novolasarevskaya in Antarctica. Since 1985, ozone soundings of the atmosphere have taken place there. In 1987, the GDR was finally admitted to the consultative round of the Antarctic Treaty states. After the

²³⁵ Alfred-Wegener-Institut Helmholtz-Zentrum für Polar-und Meeresforschung, accessed April 30, 2018, <https://www.awi.de>.

reunification of Germany in 1990, the AWI brought together German polar research, which had previously been conducted on two different tracks.²³⁶

3.3.3.4. Federal Institute for Geosciences and Natural Resources (BGR)

As part of the project “Geo-scientific investigations in the North Atlantic” (1973-1977) funded by the (West German) Federal Ministry of Economics and Labor, the Federal Institute for Geosciences and Natural Resources (BGR) began polar research as well. In the years 1974 to 1977, the BGR began large-scale geophysical investigations in the Arctic, the results of which helped to initiate industrial exploration, for example, in the Barents Sea.²³⁷

The initial development phase of German polar research came to an end in the mid-1980s. In addition to technical innovations, further developments of polar infrastructure, evoked a change in the content of research. While the initial focus of the expeditions was on biological and geo-scientific findings, oceanographic and meteorological topics drew more attention.

3.3.4. History of the AEPS/AC

Prior to the negotiations for the establishment of the Arctic Environmental Protection Strategy (AEPS), the predecessor of the Arctic Council, the Arctic region was dominated by strategic calculation between the United States and the Soviet Union. Many saw the region as the hot

²³⁶ Hans-Jürgen Paech, “Die DDR-Antarktisforschung - eine Retrospektive,” *Polarforschung* 60, no. 3 (1990): 199.

²³⁷ Since 1976, the BGR has also begun geo-scientific Antarctic research. In response to Germany’s accession the Antarctic Treaty in 1979, the BGR responded to the resulting obligations with two major long-term geological and geophysical field works in the summer of 1979/80 called the GANOVEX I program (German Antarctic North Victoria Land Expedition). The expeditions carried out by the FRG since 1978 contributed to the fact that the FRG was accepted into the round of consultative states in 1981.

Solveig Estrada, Detlef Damaske, Andreas Läufer, and Karsten Piepjohn, “30 Jahre Terrestrische Polarforschung der Bundesanstalt für Geowissenschaften und Rohstoffe – ein Rückblick,” BGR (2011): 9, accessed from May 1, 2018, https://www.bgr.bund.de/DE/Themen/Polarforschung/Historie/historie_node.html.

spot of the Cold War, as the geographical distance between the two superpowers was closest in the Arctic. The first important transformation of the Arctic began in the late 1980s and early 1990s with the end of the Cold War and the downfall of the former Soviet Union.²³⁸

In 1987, President Mikhail Gorbachev held the famous “zone of peace” speech in Murmansk, which paved the way for the institutional development of Arctic governance. In this speech Gorbachev outlined the Soviet Union’s Arctic foreign policy emphasizing the promotion of the Arctic region as a zone of peace and asking to bring down barriers that had so far frustrated efforts to create cooperative arrangements in the region. With the rapid series of events that followed, the Cold War ended and the Soviet Union collapsed, opening a new era when international consultation and cooperation on common concerns in the Arctic was possible. A wide range of cooperative initiatives ensued, including the establishment of the International Arctic Science Committee (IASC) and the AEPS that later culminated in the creation of the AC.²³⁹ A major disaster that took place during the final years of the Cold War, a serious leak of radioactive material at a Soviet nuclear power station in Chernobyl, Ukraine in 1986, had highlighted the urgency of such cooperative endeavors. The resulting plume of radioactive contamination stretched northwest, eventually reaching portions of Sweden and Finland.

The end of the Cold War and the Chernobyl disaster fostered a movement toward Arctic regime building. The global community became concerned about protection of the global environment, and scientists, policy makers and the public increasingly viewed the Arctic as a central focus for this new environmental awareness.²⁴⁰ During the Cold War, no true scientific circumpolar Arctic co-operation took place, but after the hardened fronts of the Cold War era began to melt,

²³⁸ Timo Koivurova, “Alternatives for an Arctic Treaty – Evaluation and a New Proposal,” *Review of European Community & International Environmental Law* 17, no. 1 (2008): 14.

²³⁹ Mikhail Gorbachev, “The Speech in Murmansk,” *Moscow: Novostoi Press Agency*, 1987, 24.

²⁴⁰ Douglas C. Nord, *The Changing Arctic. Creating a Framework for Consensus Building and governance within the Arctic Council* (New York: Palsgrave Macmillan, 2016), 28.

a series of meetings took place. In July 1988, the eight Arctic states met in Moscow and drafted a document entitled “Proposal for an Organizational Structure of an International Arctic Science Committee (IASC).”²⁴¹ At a meeting in Resolute Bay, Canada in August 1990 all Arctic states signed the founding document for the establishment of IASC.²⁴² This non-governmental international organization, the first association of all Arctic states active in Arctic research, contributes to planning and coordinating research projects relating to the Arctic. For the first time in history the scientific community had an international organization covering all Arctic science.

Non-Arctic countries, however, felt excluded, amongst them the Federal Republic of Germany. Therefore, in March 1989, the governments of France, Germany, the Netherlands, and the UK sent written applications to the Arctic States’ foreign ministries for membership on the IASC Council.²⁴³ These applications included brief statements of the countries’ interests in and contributions to Arctic science, as well as present activities and organizations with respect to Arctic research. In January 1991, during the first official IASC meeting in Oslo, polar research organizations from France, Germany, Japan, the Netherlands, Poland, and the UK were admitted full members of the IASC as the first non-Arctic States.²⁴⁴

IASC inspired further initiatives to international co-operation in the Arctic and marked the beginning of a new era of collaborative efforts in the region. Numerous negotiations within IASC contributed to intergovernmental cooperation in the Arctic. From 1991 to 2006 IASC was headquartered in Oslo. Then it relocated to Stockholm for two years (2006 to 2008), before

²⁴¹ Odd Rogne, Volker Rachold, Louwrens Hacquebord, and Robert Corell, “IASC after 25 Years. Special Issue of the IASC Bulletin” (2015): 17, 22, accessed July 4, 2018, <https://iasc25.iasc>.

²⁴² Department of the Environment Canada, “Brief Report from Founding Meeting, IASC Meeting 1” (1990): 22, accessed July 5, 2018, <http://iasc25.iasc.info/images/history/historical-docs/15-Report-from-Resolute-founding-meeting.pdf>.

²⁴³ Rogne, Rachold, Hacquebord, and Corell. *IASC after 25 Years. Special Issue of the IASC Bulletin*, 22.

²⁴⁴ Rogne, Rachold, Hacquebord, and Corell. *IASC after 25 Years. Special Issue of the IASC Bulletin*, 25.

moving in 2008 to Potsdam, Germany. This noteworthy move signaled the Committee's recognition of Germany's international standing in polar research. Today the secretariat is located in Iceland.

3.3.5. The Formation of the Arctic Council

Spurred by the Chernobyl disaster and other environmental concerns, and inspired by the opening of communication between the USSR and the rest of the Arctic nations, the Finnish government started a process of establishing an international pollution and contamination monitoring regime for the Arctic region in 1989. This became known as the "Finnish Initiative" and eventually established the Arctic Environmental Protection Strategy (AEPS) in 1991.²⁴⁵ The AEPS was a multilateral, non-binding agreement among the eight Arctic states on environmental protection in the Arctic with special focus on radioactive materials and other hazardous substances in the region. To cope with the environmental challenges it identified, the AEPS established four working groups, which carried out the actual work. The four working groups, which still function as part of the AC are: Arctic Monitoring and Assessment Programme (AMAP), Conservation of Flora and Fauna (CAFF), Protection of the Arctic Marine Environment (PAME), and Emergency Prevention, Preparedness, and Response (EPPR).²⁴⁶

The official declaration stated that Germany, as well as the Netherlands, Poland, and the United Kingdom, assisted the eight Arctic countries in the preparation of the strategy, and therefore granted Observer status to these four countries.²⁴⁷ Member states also were interested in the

²⁴⁵ Piotr Graczyk, and Timo Koiurova, "The Arctic Council," in *Handbook of the politics of the Arctic*, ed. Leif Christina Jensen, Geir Honneland (Elgar Publishing Limited, 2015): 298-300.

²⁴⁶ Arctic Environmental Protection Strategy (Rovaniemi, Finland, 1991), accessed July 23, 2018, http://library.arcticportal.org/1542/1/artic_environment.pdf.

²⁴⁷ Arctic Environmental Protection Strategy (Rovaniemi, Finland, 1991).

inclusion of non-Arctic countries with histories of strong polar research in the Arctic. Moreover, these non-Arctic states sustained large industries and were considered as the main generators of pollutants that affected the Arctic environment. Additionally, Germany, the Netherlands and Great Britain could contribute financially to the AEPS programs and working groups²⁴⁸ This bargaining process, called the “Rovaniemi Process,” led to the adoption of the Declaration on the Protection of the Arctic Environment and the Arctic Environmental Protection Strategy (AEPS) in June 1991 in Rovaniemi, Finland.²⁴⁹

At nearly the same time as the AEPS was established, Canada initiated a second effort at Arctic regime building, with a broader focus. During a visit to the Soviet Union in November 1989, Canadian Prime Minister Brian Mulroney delivered a speech at the USSR’s Arctic and Antarctic Institute in which he suggested a council of Arctic countries to co-ordinate and promote cooperation in the region. This proposal laid the cornerstone of what was eventually to become the Arctic Council.²⁵⁰ Canada sought to merge the existing AEPS working groups into a new organization that would address wider issues of sustainable development. Representatives of the eight Arctic States signed the Declaration on the Establishment of the Arctic Council in Ottawa on 19 September 1996.²⁵¹

The first material meeting took place in September 1998 in Iqaluit, Canada. The Declaration on the Establishment of the Arctic Council lists the following as the Council’s main objectives:

²⁴⁸ Hakon R. Nilson, “Arctic Environmental Protection Strategy (AEPS): Process and organization, 1991-97. An assessment,” *Rapportserie* 103 (1997): 6, 32.

²⁴⁹ Nilson, “Arctic Environmental Protection Strategy (AEPS): Process and organization, 1991-97. An assessment,” 6, 32.

²⁵⁰ Graczyk and Koiurova, “The Arctic Council,” 298-300.

²⁵¹ Arctic Council, “Declaration on the Establishment of the Arctic Council” (Ottawa, Canada, 1996), accessed January 30, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/85/EDOCS-1752-v2-ACMMCA00_Ottawa_1996_Founding_Declaration.PDF?sequence=5&isAllowed=y.

- a. provide a means for promoting cooperation, coordination and interaction among the Arctic States, with the involvement of the Arctic indigenous communities and other Arctic inhabitants on common Arctic issues, in particular issues of sustainable development and environmental protection in the Arctic.
- b. oversee and coordinate the programs established under the AEPS on the Arctic Monitoring and Assessment Program (AMAP); conservation of Arctic Flora and Fauna (CAFF); Protection of the Arctic Marine Environment (PAME); and Emergency Preparedness and Response (EPPR).
- c. adopt terms of reference for and oversee and coordinate a sustainable development program.
- d. disseminate information, encourage education and promote interest in Arctic-related issues.²⁵²

The Arctic Council has continued the tradition under the AEPS of extending invitations to outside organizations and non-Arctic states with significant expertise and experience in the Arctic who could contribute to the work of the AC by participating as Observers. Certain states and organizations had been active under the AEPS and were grandfathered in under the AC Rules and thus, retain their Observer status,²⁵³ among them, Germany.

The four non-Arctic states which demonstrated their engagement and interest in the implementation of the AEPS, later became “permanent” Observer states at the AC. This status was officially confirmed in the declaration of the September 1998 first ministerial meeting in Iqaluit, Canada and reinforced in the Council’s Rules of Procedure.²⁵⁴ For Germany it was

²⁵² Arctic Council, “Declaration on the Establishment of the Arctic Council.” These objectives are quoted directly from the Declaration.

²⁵³ Arctic Council, “Declaration on the Establishment of the Arctic Council.”

²⁵⁴ Piotr Graczyk, “Poland and the Arctic: Between Science and Diplomacy,” *Arctic Yearbook* (2012): 141.

important to have connections with the emerging structures that could affect science activities in the Arctic.

Even in the first years of being an Observer country in the AEPS and later the AC, the Observers already felt frustration over the limitations placed on their participation. Despite their significance as polar research nations and as an industrial state with a heavy impact on the Arctic environment, these four countries are only offered marginal roles in the new process. Due to this reduced possibility of influencing any policy processes, within both the AEPS and the AC, the Observer countries have concentrated their efforts on the Working Groups, where they can contribute through highly valuable scientific resources.²⁵⁵

Observer status in the Arctic Council is open to non-Arctic states, inter-governmental and inter-parliamentary organizations, and non-governmental organizations that the Council determines can contribute to its work, knowledge and expertise in multiple ways. The Observers are by far the largest and most diverse group of the AC, but also the least influential group. According to the AC Rules of Procedure, their role is to “observe” the work of the AC and make “relevant contributions” to its work, primarily at the working group level. Observers can also deliver statements on their views “at normal conversations during meetings of the AC or its subsidiary bodies.”²⁵⁶ They can propose, sponsor and participate in Council projects with the permission of member states. State delegations re-approve all Observers every two years in Ministerial Meetings. Like the Permanent Participants, who represent Indigenous peoples of the Arctic region, Observers also lack individual votes in all decision-making processes of the AC.

²⁵⁵ Nilson, “Arctic Environmental Protection Strategy (AEPS): Process and organization, 1991-97. An assessment,” 6.

²⁵⁶ Arctic Council, “Arctic Council Rules of Procedure. First Arctic Council Ministerial Meeting” (Iqaluit, Canada, 1998), accessed July 23, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/1783/EDOCS-3688-v2-ACMMUS02_BARROW_2000_6_SAO_Report_to_Ministers_Annex1_Rules_of_Procedure.pdf?sequence=1.

Observers can only participate in meetings upon the invitation from the chair and may make statements at meetings at the discretion of the chair. In addition, Council meetings typically include “ad hoc Observers” who can attend with special permission. They have the same rights as permanent Observers, although the member states need to re-approve their participation before every Council meeting.²⁵⁷ The European Union frequently acts as an ad hoc Observer. Typically, new Observers attend Council meetings for two to five years before the member states approve their status as permanent Observers.

By the beginning of the 21st century, the Arctic region was widely perceived as a region with a policy agenda of its own, involving a broad network of transnational cooperative activities. The Arctic Council became the prime meeting ground for representatives of all these stakeholders.²⁵⁸

3.4. Conclusion

Germany has come a long way from first being a “bystander” in the Arctic to becoming one of the leading countries in the region, enjoying a high reputation especially regarding polar research. Due to Germany’s political circumstances following WWII, it renewed pursuits in the Arctic slowly. The IGY in 1957-1958, marked a fundamental turning point for German polar researchers, as the IGY represented worldwide international cooperation of all fields of geosciences and allowed German scientists to rejoin the international community of polar researchers.

²⁵⁷ Arctic Council, “Arctic Council Rules of Procedure. First Arctic Council Ministerial Meeting,” Article 36-38.

²⁵⁸ Oran R. Young, “The Arctic in Play: Governance in a Time of Rapid Change,” *The International Journal of Marine and Coastal Law* 2 (2009): 427.

Since Germany was admitted to the Antarctic consultative round, polar research has been systematically expanded. For the first time, German polar research has been given continuity and a secure basis as a research program. The establishment of the AWI in 1979 marked another corner stone for Germany, as of now Germany possessed its own Arctic institution organizing polar expeditions and contributed to international science thanks to its elaborated infrastructure. Today, Germany has become an international leader in polar research, German polar researchers are respected members of an ever-growing international scientific community and play a leading role in many multinational projects. In addition to basic research, which today accounts for a high focus on climate change, Germany also has economic and political interest in the region.

The next chapter examines Germany's contemporary interests of Germany in the Arctic Region. In September 2013, the Foreign Office published the "Germany's Arctic Policy Guidelines" with a subtitle proclaiming "Assume Responsibility, Seize Opportunities." In these Guidelines, the German government emphasizes the growing importance of the Arctic for the global community in the light of climate change. These guidelines aim to make the Arctic a central focus of German policy. Like all the other stakeholders, Germany is faced with the challenge of reconciling its economic interests, which would favor increasing exploitation of the region's resources, with protecting the unique Arctic environment. With the melting of the Arctic sea ice during the last decades due to global warming, the Arctic is becoming ever more important for Germany in geopolitical and in geo-economic terms. Access to the region's raw materials is drawing ever closer, which creates great economic opportunities. The reduction in sea ice facilitates traffic through the polar sea routes. Therefore, the Federal Government actively backs the opening of new shipping routes in the Arctic and has a strong interest in new passageways to East Asian trading cities. However, these opportunities carry substantial risk

for nature and the environment. These new developments in the region touch upon environmental, economic, research and safety issues.

Chapter 4 Germany's Interests in the Arctic in the Contemporary Era

In recent years, interest in the Arctic region has increased significantly. Since awareness of climate change has risen, much more attention has been paid to the Arctic on an international scale. Consequences of climate change include increased shipping due to melting ice caps, resource exploitation, and expanding tourism, as well as ecosystem changes that threaten indigenous lifeways. Thus, these changes have both positive and negative implications.

4.1. German resource interest

4.1.1. Introduction

Historically, the search for biological and mineral resources was an important motive for entering research in the polar regions. In the twentieth century, scientists demonstrated the limited growth and infinite nature of raw material reserves. As a result, the Arctic attracts Germany, along with many other countries outside the region, with its immense reserves of raw materials, such as oil, gas and hydrocarbon, many of which are yet unexploited. In its Arctic Policy Guidelines, the Federal Government underscores “the great potential for the economies of Germany and Europe that Arctic resources hold,” while emphasizing the importance of access to a secure and sustainable supply of raw energy materials, which are needed to supply Germany with resources. The guidelines also stress the importance of adhering to the highest environmental standards in extracting these resources.¹

¹ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities” (Berlin, 2013): 14,18, accessed July 23, 2018, <https://www.bmel.de/SharedDocs/Downloads/EN/International/Leitlinien-Arktispolitik.pdf?blob=publicationFile>.

4.1.2. Importance of raw material for Germany

With the largest population and the strongest economy in the EU, Germany requires access to raw materials, especially oil and gas, to maintain its competitiveness. As a major consumer of raw materials that lacks sufficient domestic reserves, Germany is highly dependent on importing energy resources, minerals and raw materials.²

Oil remains Germany's most important energy resource. According to the Federal Institute for Geosciences and Natural Resources (BGR), about 98 percent of Germany's primary energy consumption of mineral oil was imported in 2016. Russia is Germany's key supplier of oil and gas, delivering almost 40 percent of oil imports in 2016.³ If this trend continues in the future, Germany's dependence on Arctic energy resources, especially from Russia, will likely increase, which keeps Germany in a vulnerable position. Some major German energy companies such as Wintershall, BayernGas and DEA Deutsche Erdoel AG, hold shares in exploration and production licenses in the Barents Sea. Both Wintershall and EON have shares in Russian natural gas fields (Urengoy/Achimgaz and Yuzhno Russkoye respectively) in Western Siberia.⁴

Germany also has close bilateral energy relationships with Norway, the second largest supplier of German energy demand. Gas imports from Norway rose from 26.1 percent to 34.4 percent

² Bundesanstalt für Geowissenschaften und Rohstoffe, "Deutschland-Rohstoffsituation 2016" (Hannover, 2016): 20, accessed January 5, 2018, https://www.bgr.bund.de/DE/Themen/Min_rohstoffe/Downloads/rohsit-2016.pdf?__blob=publicationFile&v=4.

³ Federal Ministry for Economic Affairs and Energy, "Energie in Deutschland. Trends und Hintergründe zur Energieversorgung" (Berlin, 2013): 15, accessed January 5, 2018, https://www.bmw.de/Redaktion/DE/Publikationen/Energie/energie-in-deutschland.pdf?__blob=publicationFile&v=3.

⁴ Volkmar Damm, and others, "Der Arktische Ozean aus Rohstoffwirtschaftlicher und völkerrechtlicher Sicht," *Commodity Top News*. Bundesanstalt für Geowissenschaften und Rohstoffe (BGR) (Hannover, 2016): 4-5, accessed January 5, 2018, https://www.bgr.bund.de/DE/Gemeinsames/Produkte/Downloads/Commodity_Top_News/Rohstoffwirtschaft/52_arktis.pdf?__blob=publicationFile&v=4.

between 2000 to 2011.⁵ In 2013, German chancellor Angela Merkel, during a visit in Oslo, emphasized the importance of the German-Norwegian energy partnership and promoted an expansion of the already intensive cooperation with Norway in the energy sector. The planned direct current cable from Norway to Germany is “a very important and also symbolic investment for a close connection with the energy industry in the coming years,” said Merkel.⁶

Germany’s energy vulnerability toward Norway and Russia is expected to continue to increase. Besides oil and gas, Germany’s export-oriented economy is also highly dependent on imports of minerals and metals, especially rare earths. As a “high tech” producing nation, Germany relies on a sufficient supply of these raw materials, minerals and metals, which are indispensable for industrial production.⁷ Against this backdrop, the German export sector has become more vulnerable to supply disruption.

4.1.3. Future Outlook

Germany’s dependency on foreign resource imports, especially gas from Russia, will make Germany vulnerable and could have negative political consequences, as much of the undiscovered oil and gas reserves are expected to lie within Arctic territories. Therefore, maintaining warm relationships with Russia has gained increasing importance. The recent developments in the Ukraine have strained the relationship between the two countries and the EU, resulting in increased focus on a secure energy supply in Germany and Europe. The conflict has highlighted the need to engage more intensively with geopolitical forces influencing energy security in Europe.

⁵ Federal Ministry for Economic Affairs and Energy, “Energie in Deutschland. Trends und Hintergründe zur Energieversorgung,” 15.

⁶ German Government, “Stippvisite bei guten Freunden” (Berlin, February 20, 2013), accessed January 5, 2018, <https://www.bundesregierung.de/ContentArchiv/DE/Archiv17/Reiseberichte/2013-02-20-oslo.html>.

⁷ Helga Haftendorn, “Der Traum vom Ressourcenreichtum der Arktis,” *Zeitschrift für Außen- und Sicherheitspolitik* 5 (2012): 455.

Owing to Germany's growing energy imports and rising energy prices, the German government has become more active in coordinating Germany's energy policy. It implemented the "Raw Materials Strategy," in 2010 "to shape appropriate policies in order to help limit market distortion and to alleviate its effects," such as cutting the consumption of primary raw materials via recycling, research and development.⁸ Accordingly, Germany is in the process of completely transforming its energy sector. A policy shift towards renewable energy, such as solar, wind and biological sources, intensified after Japan's Fukushima nuclear disaster in 2011. This crisis led to Chancellor Angela Merkel's decision to end the production and use of atomic energy by 2022, in favor of renewables. Germany aims to produce as much as eighty percent of its electricity from renewable sources by 2050.⁹ Despite the "Energiewende" (energy transition), Germany remains heavily dependent on imports of fossil fuels, as its domestic resources are largely depleted or extraction is too costly.¹⁰ Moreover, in the short and medium term, Germany expects to increase its consumption of traditional energy resources, such as oil, gas and coal. Therefore, Arctic hydrocarbon reserves and shipping routes interest the German government greatly.

4.1.4. Conclusion

The German economy needs to import raw materials to maintain and grow its economy. Access to raw materials requires not only technological means, but also favorable economic and political conditions.¹¹

⁸ Federal Ministry of Economics and Technology, "The German government's raw material strategy" (Berlin, 2010): 6, accessed January 5, 2018, <https://ec.europa.eu/growth/tools-databases/eip-raw-materials/en/system/files/ged/43%20raw-materials-strategy.pdf>.

⁹ Federal Ministry of Education and Research, "German Energy Transition" (Berlin, 2018), accessed January 5, 2018, <https://www.bmbf.de/en/german-energy-transition-2319.html>.

¹⁰ Hardy Grauper, "What exactly is Germany's 'Energiewende'?" (2013), accessed January 5, 2018, <http://www.dw.com/en/what-exactly-is-germanys-energiewende/a-16540762>.

¹¹ Federal Ministry for Economic Affairs and Energy, "Rohstoffe – unverzichtbar für den Zukunftsstandort Deutschland" (Berlin, 2019), accessed January 10, 2019, <https://www.bmwi.de/Redaktion/DE/Dossier/rohstoffe-und-ressourcen.html>.

Germany depends on a stable and secure global raw material market, and therefore wants to strengthen international cooperation (e.g. bilateral raw materials partnerships). In addition, engagement in the AC allows for opportunities to build trust and nurture efficient and secure trade relations.

Due to Germany's dependency on the import of energy resources, minerals and raw materials, the country relies on global stability. Besides the import of energy resources, Germany is also an export-oriented country and needs secure shipping lanes in order to maintain competitive.

4.2. German shipping interests

4.2.1. Introduction

The navigability of both the Northeast Passage and the Northwest Passage are increasing, and if this trend continues, the Transpolar Route, currently inaccessible to regular vessels, may open. Along with other industries, the Arctic transport system and maritime industries must quickly adapt to mitigate potential negative consequences.¹² It is important to recognize that these projections remain uncertain since the pace of global warming has not followed previous projections; in fact, warming has occurred faster than expected.

With the world's maritime transport system at the forefront of globalization, the emergence of new sea lanes would have global consequences. The major trading powers of Europe and Asia, particularly Germany and China, are preparing their strategies and capabilities in anticipation of the possible opening of one such new sea lane to regular commercial transit. Current trends in the melting of the sea ice on the Arctic Ocean, the predicted increase in commercial maritime

¹² Yevgeny Aksenov and others, "On the future navigability of Arctic sea routes: High-resolution projections of the Arctic Ocean and sea ice," *Science Direct, Marine Policy* 75 (2017): 312.

traffic, and potential political instability along the existing routes elsewhere contribute to the interest in new shipping lane alternatives.¹³

4.2.2. Fact and Figures

In 2017 Germany ranked among the world's largest shipping nations in terms of container ships, Germany has the fourth largest merchant fleet in the world and has one of the major export-oriented economies. As a result, Germany's economic development is to a large extent dependent on the maritime domain and maritime trade routes.¹⁴

More than 90 percent of global trade in long-distance goods is carried by sea, making safe sea routes essential to the global economy, as well as national economies. About 60 percent of Germany's imported natural resources and exported goods are transported by sea, a clear indication of Germany's dependence on the maritime domain and on well-functioning global supply chains.¹⁵

In 2016, Germany maintained its position as the world's third largest exporter (behind China and the United States) and importer (behind the United States and China). Germany's share of world trade (goods exported and imported in U.S. dollars) rose to 7.3 percent in 2017. China has become increasingly important as a trading partner for Germany and was the second most important market for German exporters outside Europe, after the United States.¹⁶ An export-oriented country like Germany naturally prizes short, safe maritime trade routes. German policy-makers recognize that a potential shorter maritime trading route through the Arctic

¹³ Margaret Blunden, "Geopolitics and the northern sea route," *International Affairs* 88, no. 1 (2012): 115.

¹⁴ Marinekommando, "Jahresbericht 2017. Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland" (Hamburg, 2017): 122, 126, 130.

¹⁵ Marinekommando, "Jahresbericht 2014. Fakten und Zahlen zur maritimen Abhängigkeit der Bundesrepublik Deutschland" (Rostock, 2014): 8.

¹⁶ Federal Ministry for Economic Affairs and Energy, "Fakten zum Deutschen Außenhandel" (Berlin, 2017): 2, accessed July 23, 2018, <https://www.bmwi.de/Redaktion/DE/Publikationen/Aussenwirtschaft/fakten-zum-deutschen-aussenhandel.html>.

would promise higher profits with shorter shipping times. German transport vessels already supply western Siberia, and German shipyards build more ships capable of navigating the northern routes than ever before.¹⁷ When regular traffic along the Northern Sea Route (NSR) becomes possible, Germany will be eager to use the NSR to connect with the fast-growing Asian economies.

4.2.3. Arctic Sea Lanes

In the Arctic, the annual average temperature has been warming at twice the rate of lower latitudes. As a result, the melting sea ice is opening the Northwest Passage through northern Canada. According to records from Environment Canada, since roughly 2006, the southern route of the Northwest Passage has been navigable in the summer almost yearly.¹⁸

The Northwest Passage, if navigable, would present a significant shortcut for shipping from Rotterdam to Seattle, for example. Usually, ship traffic must go through the Panama Canal or around Cape Horn, the southern tip of South America. Passing through the Canadian Arctic would cut shipping distances by more than four thousand miles (at least seven thousand km).¹⁹ Likewise, the route from Shanghai to Rotterdam would be 40 percent shorter through an open North-East Passage along the Russian northern Arctic than along the route through the Chinese Sea, the Indian Ocean, the Suez Canal and the Mediterranean.²⁰

Considering canal fees, fuel costs, oceanic transit time, and other variables that determine freight rates, these shortcuts could save shipping companies billions of dollars. The savings would be even greater for container ships too large for the Panama or Suez Canal. Moreover,

¹⁷ Blunden, "Geopolitics and the northern sea route," 122.

¹⁸ Tom Di Liberto, "Northwest Passage clear of ice again in 2016," accessed January 5, 2018, <https://www.climate.gov/news-features/event-tracker/northwest-passage-clear-ice-again-2016>.

¹⁹ Di Liberto, "Northwest Passage clear of ice again in 2016."

²⁰ Miaojia Liu and Jacob Kronbak, "The Potential Economic Viability of Using the Northern Sea Route (NSR) as an Alternative Route between Asia and Europe," *Journal of Transport Geography* 18, no. 3 (2009): 436.

these northern Arctic sea routes would also allow the vessels to avoid sailing through politically unstable Middle Eastern waters or avoid the danger of going through the South China Sea or the Gulf of Aden, where pirates threaten ships and travelers.²¹

The first non-Russian commercial vessels to traverse the Northeast Passage from Asia to Europe were the German merchant ships *MV Beluga Fraternity* and *MV Beluga Foresight* owned by the Beluga Shipping GmbH. In 2009 they traveled from Ulsan, South Korea, in late July to Siberia by way of the Northeast Passage.²²

4.2.4. Security

Any disruption to Arctic shipping could restrict global trade in goods and merchandise. The Arctic shipping routes must therefore be protected from political tension and military crises by means of a stable and effective governance structure that promotes cooperative measures among Arctic residents and non-Arctic residents and is based on a clear legal status. Cooperation is needed to develop maritime surveillance, common mapping, predictable weather forecasting and emergency infrastructure.

Given the advantages of open northern sea routes, Germany's main interests are open and secure maritime transport routes, as well as the settlement of territorial disputes and the establishment of a search and rescue system. Energy security related topics will play an increasing role in German security policy in coming years. Germany therefore has a great interest in developing a comprehensive sea rescue system for the region. In 2011 the Arctic

²¹ Scott G. Borgerson, "Arctic Meltdown. The Economic and Security Implications of Global Warming," *Foreign Affairs* 87, no. 502 (2008): 70.

²² Jerry Norton, "German Ships successfully make Arctic Passage," *Environment* (September, 2009), accessed March 5, 2018, <https://www.reuters.com/article/us-climate-shipping-arctic/german-ships-successfully-make-arctic-passage-idUSTRE58B01K20090912>.

Council signed an Agreement on Cooperation on Aeronautical and Maritime Search and Rescue. Berlin wanted to participate in the agreement; however, its wish was rejected by the members of the AC supervisory board.²³

The nexus of maritime trade and security has received increased attention in German security and defense discourse in recent years. In 2016 Federal Minister of Defense Ursula von der Leyen stated in her introduction in “The White Paper“ on German defense that “securing maritime supply routes and ensuring freedom of the high seas is of significant importance for an exporting nation like Germany.“ Furthermore the document emphasizes that, due to Germany’s high dependence on unimpeded maritime trade, “disruptions on supply routes caused by piracy, terrorism and regional conflicts can have negative repercussions on Germany’s prosperity.”²⁴ Germany is willing to take responsibility in security issues, according to von der Leyen, and these efforts can only be successful if Germany is interconnected with international alliances and organizations and with its allies and partners.²⁵

In the German Arctic Policy Guidelines, published in 2013, Germany promotes “freedom of navigation in the Arctic Ocean in accordance with high safety and environmental standards.” Furthermore, the document acknowledges “the significant opportunities an opening of the NSR would create for Germany.” In cooperation with the Arctic countries, Germany aims to improve “the bureaucratic, infrastructure-related and legal framework conditions,” in the Arctic. It acknowledges existing shipping regulations, such as the International Maritime Organization (IMO), but suggests “that environmental and safety standards must be re-examined on a regular

²³ Helga Haftendorn, “Zaungast in der Arktis: Deutschlands Interesse an Rohstoffen und Naturschutz,” *Internationale Politik* 4 (2011): 77.

²⁴ Federal German Government, “White Paper on German Security policy and the future of the Bundeswehr” (Berlin, 2016): 50, accessed July 23, 2018, <https://issat.dcaf.ch/Learn/Resource-Library/Other-Documents/The-2016-German-White-Paper-Strategic-Review-and-Way-Ahead>.

²⁵ Federal German Government, “White Paper on German Security policy and the future of the Bundeswehr,” 8.

basis.” The guidelines underscore Germany’s interest in new shipping routes in the Arctic as “one of the world’s largest importing and exporting nations, the third-largest merchant marine in the world and the world’s largest fleet of container ships,” noting that the new Arctic sea routes could “create significant opportunities for the German shipping.” These pronouncements illustrate the German government’s interest in “free, safe and peaceful passage through Arctic waters.” On several occasions, the document emphasizes Germany’s leading position in the maritime sector.²⁶

4.2.5. Conclusion

Despite the fact that the prediction about continued commercial use of the polar sea lanes remains vague, Germany already states its interest in safe and peaceful passages through the Arctic oceans. Germany emphasizes its eagerness to take responsibility in security issues, which can only be achieved through cooperation and international alliances. Germany’s wish to participate in the Agreement on Cooperation on Aeronautical and Maritime Search and Rescue of the AC was turned down, but in its Policy Guidelines Germany expresses the desire for more participation and speaking time in the AC. Being one of the leading export-oriented countries, Germany favors the free use of the Northern shipping lanes, as they significantly cut costs and therefore increase profits. Germany wants to take advantage of these economic opportunities by using its technological capacities.

²⁶ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 9.

4.3. German economic interests

4.3.1. Introduction

The rapid melting of the ice covering the Arctic Ocean not only opens new sea lanes but has opened access to the region's raw materials. Experts have identified massive reserves of oil and gas within the Arctic region, and Germany, like other industrialized countries, has an interest in accessing these reserves to meet its long-term energy needs. In light of the opportunities and challenges surrounding these energy reserves, Germany positions itself as a vital participant in their responsible development. Its Arctic Policy Guidelines highlight that "harsh climatic conditions and the technical challenges that need to be mastered to access Arctic raw materials, as well as the particularly sensitive Arctic environment, are leading to an increased need for specialized technology and know-how."²⁷

4.3.2. Germany's expert knowledge

In the document, Germany emphasizes its vast expert knowledge in the areas of research, technology and environmental standards in the Arctic region, which will allow it to contribute to sustainable economic development in the North. The special climatic conditions in the Arctic and the resulting technical challenges to access raw materials require such specialized technology and know-how.²⁸ As a result of the increasing navigability of the sea lanes, German maritime technologies and innovative ship-building industries, such as ship propulsion systems and special vessels, including ice class ships, can be put to use. Against this background, German companies are seeking new economic opportunities in the Arctic region. Germany envisions its industries becoming vital suppliers of high-technology products, services and

²⁷ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 6.

²⁸ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 6.

knowledge needed in the Arctic to ensure the highest environmental protection standards for sustainable economic development of the region. In stating that only by “adherence to the highest environmental standards, economic activities shall be allowed,” the German government seeks to make cutting edge technology mandatory for the Arctic region. As German companies possess these technologies, the government anticipates new export opportunities in the future.²⁹ In its policy guidelines Germany underscores its position as a global leader in this domain “especially through its shipyards and maritime contractors.”³⁰

Furthermore, German economic interests in Arctic resources have expanded. First the interest lay primarily in access to raw materials for the production of high-technology products. Nowadays Germany sees these products “as a mean to profit from economic activities in resource extraction.”³¹ Thus supplying such high-technology products offers a double advantage. As Stefan Steinicke writes: “First, new technologies might help Germany to secure its growing resource demand. Second, against the background of a growing global resource demand, an increase in the demand for new exploration and exploitation technologies is expected to increase, too.”³² Germany thus could export these high-technology products.

Therefore, in July 2011 the Federal Government published its National Masterplan for Maritime Technologies (NMMT), “which aims to unlock the full potential of these technologies.”³³ The German Arctic Policy Guidelines highlight, that “by driving forward this cutting-edge maritime technology that meets high environmental standards, high-quality jobs are being created and

²⁹ Stefan Steinicke, “Germany’s Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests” (PhD diss., Universität der Bundeswehr, 2017), 287.

³⁰ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 9.

³¹ Steinicke, “Germany’s Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests,” 287.

³² Steinicke, “Germany’s Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests,” 287.

³³ Steinicke, “Germany’s Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests,” 287.

secured in a key future market that is of great strategic importance.”³⁴ Among the key areas of maritime technologies are ice and polar technology, deep sea energy resources exploration technology, underwater technology, and marine mineral resource exploration technology.³⁵

Today German industry is already quite active in the region with regards to supplying technology and infrastructure components needed for energy exploration and exploitation. In addition, German shipbuilding companies are among the world’s leading producers of ice-breaking ships. In December 2012, the Federal Agency of Sea and River Transport of Russia and the German company *Nordic Yards* signed a contract for the construction of two multipurpose salvage vessels designed to work in the Russian Arctic. *Nordic Yards* is a leading producer of highly specialized ships including ice-going ships and icebreakers.³⁶ In another example of its expertise in technology suited for the high north, the German company *Linde* was crucial in supplying state of the art technology for the construction of Europe’s only base load LNG (Liquified Natural Gas) plant at Hammerfest, Norway, which liquefies feed-gas delivered by pipeline from the Snohvit field in the Barents Sea.³⁷

4.3.3. Conclusion

The vulnerable and sensitive Arctic ecosystem requires specialized exploration and exploitation technology and know-how. German possess the necessary expert knowledge in many different areas, from ship building to maritime technology. As a result, Germany envisions developing alliances to become a vital partner and supplier of high-technology products, services and

³⁴ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 6.

³⁵ Federal Ministry for Economic Affairs and Energy, “Nationaler Masterplan Maritime Technologien” (Berlin, 2014), accessed October 5, 2018, <http://www.bmwi.de/DE/Mediathek/publikationen,did=431034.html>.

³⁶ Aiswarya Lakshmi, “Germany’s Nordic Yards Set to Build Shipyard in Russia” (2015), accessed November 6, 2018, <https://www.marinelink.com/news/germanys-shipyard-nordic386283>.

³⁷ Maxim Schwarz, “Linde masterminds the Norway to Sweden. LNG supply chain with mid-scale solutions,” Linde Engineering (Pullach, Germany, 2011), accessed December 5, 2018, https://www.linde-engineering.com/internet.global.lindeengineering.global/de/images/LNG%20Journal%20article%20about%20Linde's%20Mid-Scale%20LNG%20activities20_117848.pdf?v=4.0

knowledge. Germany intends to use this knowledge while adhering to the highest environmental standards and thereby contributing to sustainable economic development in the Arctic. This “adherence to the highest environmental standards” while operating in the Arctic, illustrates Germany’s environmental concern of the region. This strong commitment to mitigating climate change has contributed to Germany’s interest in Arctic environmental concerns.

4.4. German environmental interests

4.4.1 Introduction

Germany stands among the leading countries in Europe and the world in terms of its renewable energy and climate change policies. In the last decades Germany has become a frontrunner in global climate protection with strong commitment internationally. These ambitious policy initiatives date back to the 1980s, when Chancellor Helmut Kohl declared climate change as the most important environmental problem.³⁸ Chancellor Merkel has described climate change as one of the great challenges of the twenty-first century.³⁹ With the Arctic warming at twice the global rate, the region functions as the earth’s “early warning system.”⁴⁰ Phenomena such as shrinking sea ice in the Arctic Ocean, increased melting of the Greenland ice sheet, thawing of permafrost and altered ocean currents affect not only the Arctic region, but the global climate.

³⁸ Helmut Weidner, “Klimaschutzpolitik. Warum Ist Deutschland Ein Vorreiter Im internationalen Vergleich? Zur Rolle von Handlungskapazitäten Und Pfadabhängigkeit” (Wissenschaftszentrum Berlin, 2008): 6, accessed December 5, 2018, <https://bibliothek.wzb.eu/pdf/2008/iv08-303.pdf>, 5, 8.

³⁹ Bundeskanzlerin. “Weltweites Klimaschutzabkommen weiter entwickeln” (Berlin, 2006), accessed July 23, 2018, <https://www.bundeskanzlerin.de/ContentArchiv/DE/Archiv17/Reiseberichte/gb-weltweites-klimaschutzabkommen-weiter-entwickeln.html>.

⁴⁰ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 40.

Moreover, Germany recognizes a link between a changing climate and security developments in the region.

The impacts of climate change in the Arctic are dramatically increasing. According to the German Arctic Policy Guidelines: “The Arctic is therefore one of the first regions in which climate change is bringing a fundamentally new geographic constellation. The consequences are diverse: these developments generate both opportunities and risks, and their effect is felt far beyond the Arctic region as such. They touch upon environmental, economic, research and safety issues, and are becoming a focus of foreign and European policy.”⁴¹

4.4.2. Impacts on Germany

The Federal Ministry for the Environment, Nature Conservation and Nuclear Safety describes in its document “Combating Climate Change, The German Adaption Strategy” how climate change is already affecting Germany. The annual temperature has risen by nearly 0.9 degrees Celsius since 1901. From 1990 to 1999 meteorologists recorded the warmest decade of the entire 20th century. Precipitation has increased by about 9 percent since the beginning of the twentieth century.⁴² A possible worst-case scenario is a global sea-level rise that would threaten German coastal regions in general, off shore wind farms and economic centers such as the seaport in Hamburg in particular.⁴³

⁴¹ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 4.

⁴² Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, “Combating Climate Change. The German Adaption Strategy” (Berlin, 2009): 13-14, accessed December 5, 2018, http://www.bmu.de/fileadmin/bmu-import/files/english/pdf/application/pdf/broschuere_dem_klima-wandel_begegnen_en.pdf.

⁴³ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, “Combating Climate Change. The German Adaption Strategy,” 13, 46.

Former Member of the German Bundestag Franz Thönnies⁴⁴ emphasized in a speech given at a joint conference in Ottawa in 2010 that Germany has a coastline of just under 2,400 km (1,491 miles) and that the EU is surrounded by four seas and two oceans. Therefore, neither Germany nor the EU can be indifferent to a region whose melting ice sheet, rising sea level and increase in temperature have a direct impact on Germany and Europe.⁴⁵ The German government's Arctic Policy Guidelines highlight how climate change "directly impacts Germany."⁴⁶

Chancellor Angela Merkel, a physicist and the former Environment Minister of Germany, feels compelled to learn about the consequences of global warming first hand. Merkel and then Environment Minister Sigmar Gabriel began a two-day visit to Greenland, Ilulissat, in 2007, where she pointed out the consequences of climate change. She focused squarely on environmental challenges and the resulting responsibilities for Germany and the rest of the world in the fight against global climate change.⁴⁷ In October 2014 at the opening of the Arctic Circle conference in Reykjavik, Iceland, Merkel appeared in a video message. As in Greenland seven years earlier, she underlined the region's symbolic character in the fight against global climate change, as nowhere else are the "dramatic effects of climate change" more evident. She further elaborated that changes in the Arctic are affecting large parts of the world, which leads to a shared international responsibility for the region. She emphasized that Germany is available as a partner with its know-how and research expertise and wants to expand its contribution to active Arctic policy. She declared: "we rely on cooperation and coordination to enable us to benefit from the economic opportunities whilst protecting the Arctic's sensitive ecosystem thus

⁴⁴ Former Member of the German Bundestag, Former Member of the Committee on Foreign Affairs, Former Head of the German Delegation to the Baltic Sea Parliamentary Conference.

⁴⁵ Franz Thönnies, "Governing the Far North: Assessing Cooperation Between Arctic and Non-Arctic Nations," Ottawa, Canada, 2010. Ottawa joint conference of the Woodrow Wilson International Center for Scholars, Washington D.C. and the Friedrich Ebert Foundation, Washington D.C.
<https://www.wilsoncenter.org/sites/default/files/SpeechArktisEng.pdf>

⁴⁶ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 5.

⁴⁷ Florian Gathmann, "Grönland-Reise. Merkel Auf Eis," *Der Spiegel* (August 16, 2007), accessed November 1, 2018, <http://www.spiegel.de/politik/deutschland/groenland-reise-merkel-auf-eis-a-500231.html>.

promoting sustainable development.”⁴⁸ Merkel has been prominent in the fight against climate change on the international arena, including in the Paris Agreement and the Kyoto Protocol agreement, which has led to her nickname “the climate chancellor.”

Other German leaders also have been outspoken on the topic. Former minister of Foreign Affairs Guido Westerwelle highlighted Germany’s long tradition and significant contributions in polar research during a speech at a conference organized by the Ministry of Foreign Affairs in 2011, in which he advocated for free and open research activities in the Arctic, as “the challenges of climate change affect us all.”⁴⁹ He pointed out that many states around the world produce emissions and that they “cannot be allowed to be just part of the problem but must become part of the solution.” He therefore encouraged efforts of the international community to continue scientific research on climate change.⁵⁰

4.4.3. Climate Research

Because the German government considers the effects of climate change one of the greatest challenges of the 21st century, with global consequences, including in Germany, German polar research increasingly focuses on gaining a better understanding of the fluctuations and forces that shape regional and global climate patterns.⁵¹ The German Arctic Policy Guidelines emphasize the great importance on polar research. “The knowledge gained through these activities is a key factor in understanding the Arctic region and shaping Arctic policy. Enabling

⁴⁸ Angela Merkel, “Videobotschaft auf der Arctic Circle Konferenz Reykjavik.” (Reykjavik, 2014), accessed July 5, 2018, <http://arcticcircle.org/video-2014>. Translated by author.

⁴⁹ Guido Westerwelle, “Climate Change, International Law and Arctic Research – Legal Aspects of Marine Research in the Arctic Ocean,” in *Arctic Science, International Law and Climate Change. Beiträge zum ausländischen öffentlichen Recht und Völkerrecht, Veröffentlichungen des Max-Planck-Instituts für ausländisches öffentliches Recht und Völkerrecht* 235, ed. Rainer S. Wasum, I. Winkelmann, K. Tiroch (Berlin, Heidelberg: Springer 2012).

⁵⁰ Guido Westerwelle, “Climate Change, International Law and Arctic Research – Legal Aspects of Marine Research in the Arctic Ocean.”

⁵¹ Federal Ministry of Education and Research, “Rapid climate change. Polar Research as a Global Responsibility.” (Berlin, 2015): 14, accessed October 5, 2018, https://www.fona.de/mediathek/pdf/Rapid_Climate_Change_in_the_Arctic.pdf, 14.

free and responsible scientific research based on cooperation, as well as enhancing the conditions for research, should be a high priority of the international community.”⁵²

Closely linked to the German government’s prominent role in its fight against global climate change are concerns about aggravated conflict and competition for natural resources in the Arctic region. According to the German government, the pace of global climate change must be reduced; otherwise “experts expect far-reaching consequences for the environment, society and economy.”⁵³ Global climate change can have ecological, social and economic consequences for millions of people, for example with regard to access to food or serious droughts in other areas. All these developments could further destabilize unstable countries and entire regions and in turn, can also have an impact on German and European security interests, thereby negatively affecting European stability.

Germany developed the German Adaptation Strategy (DAS), a medium-term process in which national and local authorities as well as other actors in society join forces to identify needed action to prevent adverse effects of climate change. For the German government, adaptation is therefore becoming an “increasingly important aspect of bilateral and international operation,” which also plays a “central role in cooperation on development, security and environmental policy.”⁵⁴ Consequently, the country pursues various scientific research interests in the Arctic, seeking better understanding of “the complex interdependence between the Arctic and the global ecosystem and its possible implications for peace and stability across the globe.”⁵⁵

⁵² Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 18.

⁵³ Federal Ministry of Environment, Nature Conservation and Nuclear Safety, “Combating Climate Change. The German Adaption Strategy,” 6.

⁵⁴ Federal Ministry of Environment, Nature Conservation and Nuclear Safety, “Combating Climate Change. The German Adaption Strategy,” 9.

⁵⁵ Stefan Steinicke. “A Slow Train Coming: Germany’s emerging Arctic policy,” in *Perceptions and Strategies of Arcticness in Sub-Arctic Europe*, ed Andris Sprūds, and Toms Rostoks, Riga: Latvian Institute of International Affairs (2014): 131, accessed December 1, 2016, http://liia.lv/site/docs/Paraugs_Artic_148x210.pdf.

The German Arctic Policy Guidelines declare that, Germany has an environmental interest in the Arctic because of immediate concerns about the region's role in global warming and potential future strategic consequences of this interdependence between regional and global environmental processes.⁵⁶ Germany has been committed in various ways to providing the international community with relevant data to enhance understanding of the climate system as well as with analyses of future potential developments for the polar regions.

4.4.4. German Arctic Research Institute

Germany invests heavily in polar research focused on environmental change in the Arctic and its implications for global climate change. It has initiated a number of national and international programs and initiatives aimed at fighting global climate change. In 2007 the Federal Government adopted the integrated climate and energy program, aimed at reducing consumption of conventional energy resources to slow global warming.⁵⁷ It has launched several institutions to facilitate research in polar regions, especially to monitor climate conditions in the Arctic.

The primary German research institute focused on Arctic issues is the Alfred Wegener Institute, Helmholtz Centre for Polar and Marine Research (AWI), located in the north of Germany in Bremerhaven town. The AWI, founded in 1980, is Germany's national polar research institute and one of the world's leading research institutes. Situated within the Federal Ministry of Education and Research (BMBF), the AWI has more than 1,000 employees and an annual budget of more than 100 million Euros.⁵⁸ Largely owing to the internationally recognized

⁵⁶ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 28.

⁵⁷ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, "Eckpunkte für ein integriertes Energie- und Klimaprogramm" (Berlin, 2014), accessed November 12, 2018, <http://www.bmu.de/service/publikationen/downloads/details/artikel/eckpunkte-fuer-ein-integriertes-energie-und-klimaprogramm>.

⁵⁸ Alfred-Wegener-Institut Helmholtz-Zentrum für Polar-und Meeresforschung, "Das Alfred-Wegener-Institut; Annual Report. Facts and Figures" (*Bremerhaven, 2014*): 16, 27, accessed November 14, 2018, <https://epic.awi.de/41055/1/BusinessReport2014Web.pdf>;

activities of the AWI and its research infrastructure, Germany is considered an “Arctic player“ in polar research.⁵⁹ With its two research stations in Svalbard (German-French cooperation) and Samoilov (Russian-German cooperation) and its polar research vessel *Polarstern*, Germany possesses substantial research infrastructure. The AWI operates further research stations in Antarctica, ships and airplanes and carries out multidisciplinary marine and terrestrial polar expeditions in the Arctic and Antarctic.

The second most significant polar research entity in Germany is the Federal Agency for Geoscience and Resources (Bundesanstalt für Geowissenschaften und Rohstoffe, BGR) which has been active in the Arctic since 1992. While the AWI focuses on marine polar research and earth system analysis, the BGR is the lead operator for the preparation and conduct of research projects in various regions, including the Arctic region. The BGR has considerable expertise in the field of polar geology and focuses on terrestrial polar research activities and the geological analysis of land areas as well as the appraisal of polar resources.⁶⁰

The Federal Government supports international cooperation in all areas of Arctic research through the International Arctic Science Committee (IASC). Until 2017, IASC was based in Potsdam, Germany, which was the first time that a non-Arctic country hosted IASC. IASC is the leading forum for cooperation among all states and scientific bodies involved in Arctic research and serves as source of expert knowledge on Arctic issues, such as sustainability, governance, resources and air pollution.⁶¹

Konsortium Deutsche Meeresforschung, “Alfred-Wegener-Institut Helmholtz-Zentrum für Polar Meeresforschung.” (Berlin, 2016), accessed October 5, 2018, <http://www.deutsche-meeresforschung.de/de/awi>.

⁵⁹ Helga Haftendorn, “Zaungast in der Arktis: Deutschlands Interesse an Rohstoffen und Naturschutz,” *Internationale Politik* 4 (2011): 72.

⁶⁰ Bundesanstalt für Geowissenschaften und Rohstoffe, “Tätigkeitsbericht 2011.” (Hannover, 2012): 128, accessed October 5, 2018, https://www.bgr.bund.de/DE/Gemeinsames/Produkte/Downloads/Taetigkeitsberichte/taetigkeitsbericht_2011.pdf;jsessionid=D330A56AB428C2BF55DD84D08FE70E2B.2_cid284?__blob=publicationFile&v=2.

⁶¹ Kathrin Keil, “German Involvement in the Arctic: Policy Issues and Scientific Research,” *The Arctic Institute (IASS)* (2015), accessed December 2, 2016, <http://www.thearcticinstitute.org/german-involvement-arctic/>.

In January 2017 Germany opened a German Arctic office in Potsdam. The Arctic Office aims to offer direct scientific advice to decision makers. It draws expertise from a network of scientists from all German research institutes working on Arctic topics and serves as an information and cooperation platform for German stakeholder's science, politics and industry on a national and international level.⁶²

German policymakers and researchers are becoming increasingly active in Arctic related topics. They are creating networks with other international policymakers and researchers as well as building collaborations and cooperation within the scientific and political sectors and within the general public.

4.4.5. International Cooperation

Research in the polar regions requires substantial logistical and infrastructure investments, which highlights the need for increased international cooperation. Therefore, Germany's polar research activities are deeply embedded in international research cooperation frameworks. Besides the German-French research collaboration on Svalbard, Germany's main partners in Arctic research are Russia and Norway. In the Fram Strait region between Spitsbergen and Greenland, Germany works closely with the Norwegians.⁶³ Germany's cooperation with Russia takes place in the Laptev Sea as well as in the Lena Delta, where the common research station Samoylov is located. The Russian-German "Laptev Sea System" research program has allowed scientists from the two countries to conduct joint multidisciplinary expeditions and projects since 1991. This successful collaboration has become one of the key pillars of German Arctic research over the past twenty years and will be expanded through further cooperation in the

⁶² German Arctic Office, accessed November 5, 2018, <http://www.arctic-office.de>.

⁶³ Federal Ministry of Education and Research, "Rapid Climate Change in the Arctic. Polar Research as a Global Responsibility," 15.

future.⁶⁴ The increasing number of German polar research expeditions in recent years illustrates Germany's expanded engagement in the Arctic region. As an example of its collaborative endeavors in the Arctic, German scientists participated with scientists from Denmark, France, Norway, the Russian Federation, Sweden, the UK and the United States to create a Tectonic Map of the Arctic (TeMAr).⁶⁵

One of the greatest Arctic expeditions of all times will take place in the autumn of 2019 when the German research icebreaker *Polarstern* will drift frozen through the Arctic Ocean, in the first year-round expedition into the central Arctic to explore the Arctic climate system. The project, called MOSAiC (The Multidisciplinary Drifting Observatory for the Study of Arctic Climate), has a total budget exceeding 120 Million €, and a total of 600 scientists from 17 nations will participate in the expedition. The expedition aims to enhance understanding of the influence of the Arctic on the global climate. It will thus be a milestone for climate research, and its data will be valuable for generations to come. The mission under the direction of the Alfred Wegener Institute is associated with unprecedented challenges.⁶⁶ An international fleet of icebreakers, helicopters and airplanes will supply the team during the expedition. Consequently, only an international consortium of leading polar research institutions can conduct such an expedition. The MOSAiC will take place under the umbrella of the International Arctic Science Committee (IASC), led by the Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung (AWI), Arctic and Antarctic Research Institute

⁶⁴ Federal Ministry of Education and Research, "Rapid Climate Change in the Arctic. Polar Research as a Global Responsibility," 6.

⁶⁵ Federal Ministry of Education and Research, "Rapid Climate Change in the Arctic. Polar Research as a Global Responsibility," 17.

⁶⁶ Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung, "Ein Jahr eingefroren im Nordpolarmeer," accessed November 12, 2018, <https://www.awi.de/im-fokus/mosaic-expedition.html>.

(AARI) and the University of Colorado, Cooperative Institute for Research in Environmental Sciences (CIRES).⁶⁷

4.4.6. Conclusion

Germany is one of the leading countries in Europe, as well as globally, in terms of its renewable energy and climate change policies. In the last decades Germany has become a frontrunner in global climate protection with strong commitment and participation internationally. Germany already feels the effects of climate change, but a global sea-level rise would threaten Germany's coastal regions, such as Hamburg. German polar research always had a scientific background, and it comes to no surprise that German polar research today focuses on gaining a better understanding on global climate change. So far Germany has initiated numerous national and international programs and initiatives to fight global climate change with the AWI leading the way. As research in the remote polar region requires high investments due to substantial logistical and infrastructure, cooperation is needed to conduct immense projects, such as the MOSAiC. Germany has participated in various projects in the high North in recent decades, which clearly shows its newly discovered interest and care for the region. Germany even goes a step further by indicating that it wants to take responsibility, as the headline of the Policy Guidelines declares: "Assume responsibility, seize opportunities." Germany stands as a reliable research partner, stressing its expertise and research capacities, as it pursues a more prominent role as an Arctic Council Observer.

⁶⁷ Alfred-Wegener-Institut Helmholtz-Zentrum für Polar-und Meeresforschung, "Ein Jahr eingefroren im Nordpolarmeer."

4.5. German political interests in the Arctic

4.5.1. Introduction

The consequences of climate change, including thawing sea ice in the region, have moved the Arctic to the center of global interest in recent decades. The Arctic Council has been the most important political institution in the region in addressing climate change, the growing geopolitical importance of the region, and emerging commercial opportunities such as shipping, and sustainable development of natural resources. However, not only the eight-member states of the Arctic Council view themselves as stakeholders in the region. Non-Arctic states have been present in the North through their scientific activities and expeditions long before the beginning of the region's image-transformation from a "frozen desert" to an "Arctic in change."⁶⁸

The growing political and economic importance of the Arctic has prompted Germany's Federal Government to take a closer look at German Arctic policy. Germany's presence in the Arctic was formerly driven by scientific, economic, strategic and perhaps to a certain extent also national pride motivation. When the new cooperation structures started to emerge in the region with the decline of the Cold War, Germany and the United Kingdom were among the first non-Arctic actors to join in.⁶⁹

As recognized Observers to the Arctic Environmental Protection Strategy, Germany, the Netherlands, Poland and the United Kingdom, "inherited" their status from this precursor to the

⁶⁸ Timo Koivurova, "Limits and Possibilities of the Arctic Council in a Rapidly Changing Scene of Arctic Governance," *Polar Record* 46, no. 2 (2009): 146.

⁶⁹ Malgorzata Smieszek and Paula Kankaanpää, "Observer States' Commitments to the Arctic Council: The Arctic Policy Documents of the United Kingdom and Germany as case Study," *The Yearbook of the Polar Law* 6 (2015): 377.

Arctic Council. They were approved as Observers to the AC in the Iqaluit Declaration of 1998.⁷⁰ Since then the number of Observer states has increased to thirteen, with a total of thirty-nine official Observers, including inter-governmental, inter-parliamentary, and non-governmental organizations.

The increased attention paid to the region has best been evidenced by the number of applicants for Observer status received and reviewed by the Arctic Council during its Ministerial Meeting in May 2013 in Kiruna, Sweden. Participation as an official Observer within the Arctic Council is the only way to receive formal recognition and gain access to this high-level intergovernmental forum and its collaborative deliberations. Although Germany's political engagement in the region is a relatively new phenomenon, in recent years Germany has become a recognized international actor in the High North due to its high profile in polar research, commitment to environmental responsibility, increased political engagement, and active participation in discussions about the future and the sustainable development of the Arctic.

Against the background of a changing political and institutional context in the Arctic, Germany has continually sought to enhance its role as a permanent Observer within the AC. Due to the increasing geopolitical and geo-economic significance of the region, and the increased number of new Observers, the original Observer states want to make sure that their interests are respected and represented. Among other efforts, Germany has requested enhanced speaking time and seeks to ensure its permanent participation in AC working groups. Germany's government seeks to leverage its expert knowledge in research, technology, and environmental

⁷⁰ Arctic Council, "Iqaluit Declaration. The First Ministerial Meeting of the Arctic Council" (Iqaluit, Canada 1998), accessed July 23, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/86/01_iqaluit_declaration_1998_signed%20%282%29.pdf?sequence=1&isAllowed=y.

awareness to increase its engagement within the AC and among its member states.⁷¹ So far, German delegates can only use informal contact within the context of AC meetings to discuss Arctic issues with their counterparts of the AC member states.

4.5.2. Voices of German Diplomats

In 2013 Thomas H. Meister, German Ambassador to Iceland at the time, explained his view of German Arctic policy during an Arctic Energy Summit in Akureyri, Iceland. He referred to Germany's recently published Arctic Policy Framework. He confirmed that Germany is an international actor in the high North "with a high profile in polar research, strong political engagement and active participation in discussions about the future and the sustainable development of the Arctic." With regards to the Arctic Council, Meister pointed out that Germany sees the AC as the most central body for Arctic policy. He added that "Germany is prepared to do its share as an Observer country being widely acknowledged as a partner with substantial know-how in the areas of research, technology and environmental standards and is seeking to more strongly and creatively put this know-how to use." He suggested "extending Observer countries' participation rights on a case-by-case basis, if an Observer can substantially contribute to resolving an issue."⁷²

In 2011 German foreign Minister at the time Guido Westerwelle gave a speech at the German Foreign Ministry regarding the country's activities in the Arctic. He pointed out that Germany has been proud of its Arctic involvement in the last decades and recited its three Arctic policy goals. First, he emphasized the importance of freedom of research and argued that research

⁷¹ Ministry of Foreign Affairs, "Deutschland und der Arktische Rat" (Berlin, 2013), accessed October 5, 2018, http://www.auswaer-tiges-amt.de/sid_61B197A067BF05BE50A680C07E922B1C/DE/Europa/Reg-Nord/Arkt_Rat/Arkt_Rat_DE_node.html, accessed December 27, 2013.

⁷² Thomas H. Meister, Meister, Ambassador in Iceland's Contribution to the Panel: An Integrated Approach to Energy and Sustainable Development in the National Interest. Arctic Energy Summit, Akureyri, Iceland. (October 8, 2013). <https://www.youtube.com/watch?v=YJpNyKDL3Cc>.

must be open to all, because the challenges of climate change are affecting all of us and all states are contributing to climate change. Non-Arctic states must not only be part of the problem, but must become part of the solution, he said. Therefore, international co-ordination, communication and research must continue. Secondly, he expressed the importance of adherence to the highest environmental standards. Too much talk has been done about the Arctic rights and not enough about Arctic responsibilities, he declared. He took the Arctic countries to task, saying “sovereignty today means commitment.” Only compliance with environmental standards and fishing quotas brings acceptance and respect from partners (in this case other states), he declared, while urging the AC to become a “guardian of the environment.” The third goal Westerwelle identified was ensuring clear responsibility for any environmental damage occurring in the Arctic with polluters being held liable. Reserving the common heritage of mankind must be the paramount goal of any policy concerning the Arctic Ocean. Therefore, he said, AC members must not close their doors, but remain open to the world, and Germany counts on cooperation with the AC in this regard. He finalized his speech by offering help, wherever German can help.⁷³

Germany and the United Kingdom were the first countries to submit an official document to underline their statements of Arctic goals and interests in the fall of 2013. Germany’s Arctic Policy Guidelines: “Assume responsibility, seize opportunities” constituted the first ever, explicit and coordinated German Arctic document and described German views and interests in the Arctic region. This was a significant step, the first effort to coordinate Germany’s Arctic engagement formally. Stefan Steinicke, who wrote his doctoral dissertation on Germany’s Arctic engagement, suggested that the German government recognized the need for such a

⁷³ Guido Westerwelle, “Climate Change, International Law and Arctic Research – Legal Aspects of Marine Research in the Arctic Ocean,” in *Arctic Science, International Law and Climate Change. Beiträge zum ausländischen öffentlichen Recht und Völkerrecht, Veröffentlichungen des Max-Planck-Instituts für ausländisches öffentliches Recht und Völkerrecht* 235, ed. Rainer S. Wasum-Rainer, I. Winkelmann, and K. Tiroch (Heidelberg, Berlin: Springer, 2012). Translated by author.

statement, given that all Arctic states and most of the Permanent Participants of the AC had already published their Arctic Strategies. Secondly, better coordination of German activities in the Arctic would strengthen the government's coherence and appearance in Arctic questions.⁷⁴ The German Arctic Policy Guidelines begin with an executive summary that lists the most important points of German Arctic policy. It states that the German Federal Government "aims to take the specific nature of the Arctic into account and to make it a central focus of German policy." It recognizes the great potential for the German economy but stresses the importance of enforcing the highest environmental standards to protect the Arctic environment.

Furthermore, it stresses Germany's "vast expert knowledge in the areas of research, technology and environmental standards" and highlights the state's potential contribution to "sustainable economic development in the region." It emphasizes its wish to cooperate Arctic countries, especially in the maritime-sector, such as in polar technology. Germany affirms its commitment to freedom of navigation in the Arctic Ocean as well as freedom of Arctic research, affirming that "scientific research is of fundamental importance for the Arctic." Finally, it notes that Germany "favors multilateral cooperation on Arctic issues," especially in the Arctic Council in which it seeks to "strengthen its Observers status." In this context of interdependencies between Germany and the Arctic, Germany seeks to participate in the region's transformation. Therefore, it presents itself as a key Arctic partner and emphasizes its pursuit of "a high profile in polar research, strong political engagement and active participation in discussions about the future and the sustainable development of the Arctic."⁷⁵

⁷⁴ Stefan Steinicke, "Germany's Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests." (PhD diss., Universität der Bundeswehr, 2017), 256.

⁷⁵ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 5.

Besides its further commitment to use the Arctic for “peaceful purposes only,” Germany’s political engagement is based among other things, on the following international treaties and declarations: United Nations Convention on the Law of the Sea (UNCLOS), the International Convention for the Prevention of Marine Pollution from Ships (MARPOL), the Convention for the Protection of the Marine Environment and Biodiversity, and finally the Spitsbergen Treaty and Antarctic Treaty.

Germany’s Arctic policy emphasizes multilateral institutions, agreements and solutions in dealing with Arctic challenges. The Federal Government stresses that it “maintains friendly and intensive bilateral relations with the member states of the Arctic Council and is particularly interested in cooperation on Arctic policy issues,”⁷⁶ which it says should be discussed within existing bilateral structures and bodies.

The document concludes by stating that “prospects for German companies are bright.” And that the government “is seeking to make the Arctic region an even stronger focus of German policy.”⁷⁷ It proclaims, “With its know-how in cutting-edge research, sophisticated technology, and high environmental standards, Germany is in a position to support sustainable economic development in the Arctic.”⁷⁸

4.5.3. The Arctic Council

As the region has moved into the focus of attention for international communities, there has been an increased interest in a system of governance for the Arctic. Most of the cooperation on

⁷⁶ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 16.

⁷⁷ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 18.

⁷⁸ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 6.

Arctic issues is done through the AC. Today the AC addresses some of the most urgent concerns of the region and strives to provide effective responses and solutions to these new challenges. Observer status provides opportunities for non-Arctic states and entities to participate in Arctic politics, in a limited way. According to the Arctic Council Rules of Procedure, the primary role of Observers is “to observe the work of the Arctic Council.” The AC encourages Observers to contribute to AC’s activities primarily through its Working Groups.⁷⁹ During the meetings to which they are invited, Observers may make statements at the discretion of the chair, “submit relevant documents and provide views on the issues under discussion.”⁸⁰ Under the new rules adopted in 2013 Observers are invited to contribute to the body of work of AC subsidiary bodies by contributing to existing and developing projects through expert involvement and support, and financial contribution, such as project funding. Furthermore, they may host project-specific, expert-level workshops.⁸¹ Today the AC is seen as a forum for international partnerships and scientific networks on Arctic related issues.

Not all Observers make use of their participatory rights, and in the end, some abstain from council meetings or participation in WG projects. Despite Germany’s long polar history and involvement in Arctic science, and its status as an original AC Observer, it has been described as a “guest”⁸² that pursues a “more discrete strategy based on scientific research, technical expertise and promotion of commercial interest.”⁸³

⁷⁹ Arctic Council, “Arctic Council Rules of Procedure. First Arctic Council Ministerial Meeting.” (Iqaluit Canada, 1998): Part V, Other Matters, 36, accessed October 5, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/1783/EDOCS-3688-v2-.ACMMUS02_BARROW_2000_6_SAO_Report_to_Ministers_Annex1_Rules_of_Procedure.pdf?sequence=1.

⁸⁰ Arctic Council, “Observer Manual for subsidiary bodies.” (Kiruna Sweden, 2013): 4, 7, accessed October 5, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/939/EDOCS-3020-v1B-Observer-manual-with-addendum-finalized_Oct2016.PDF?sequence=8&isAllowed=y.

⁸¹ Arctic Council, “Observer Manual for subsidiary bodies.”

⁸² Helga Haftendorn, “Zaungast in der Arktis: Deutschlands Interesse an Rohstoffen und Naturschutz,” *Internationale Politik* 4 (2011): 73.

⁸³ Cecile Pelaudeix and Thierry Rodon, “The European Union Arctic Policy and National Interests of France and Germany: Internal and External Policy Coherence at Stake?” *Northern Review* 37 (2014): 77.

Sebastian Knecht of the Berlin Graduate School of International Studies analyzed the participation level in international negotiation at the AC and found that the average attendance by Observers is rather low compared to the eight Arctic states. Knecht found that Germany had no delegation attending AC meetings for most of the time between 1998 and 2015. With an overall attendance of about 9 percent, Germany has the second-lowest attendance record of all state Observers. Germany has increased its participation, however, since 2013, the year when it published its Arctic Policy Guidelines. Knecht suggests that inadequate funding for German delegate attendance explains the low participation in earlier years, along with an overall lack of interest in pursuing national priorities in the region through the AC.⁸⁴ Knecht perceives Germany as looking for opportunities in the Arctic and viewing the Arctic mainly as a store of resources to which the nation and its companies want to gain access. Furthermore, argues Knecht, Germany is not satisfied with its participatory rights as an Observer in the AC and therefore sees the AC as an “inappropriate forum to further its national interests in there region.”⁸⁵ Germany expresses its dissatisfaction with its Observer rights in its Arctic Policy Guidelines, where it asks for more speaking time at AC meetings, as well as expressing its intention to increase its “ad hoc participation in Arctic Council working groups,” and suggesting “to extend Observer countries’ participation rights on a case-by-case basis, if an Observer can substantially contribute to resolving an issue.”⁸⁶

As a consequence, according to Knecht, Germany is turning towards other diplomatic channels to be more engaged in Arctic issues, including bilateral relations with Arctic states and other

⁸⁴ Sebastian Knecht, “Exploring Different levels of Stakeholder Activity in International Institutions: Late Bloomers, Regular Visitors, And Overachievers in Arctic Council Working Groups,” in *Governing Arctic Change. Global Perspectives*, ed. Kathrin Keil, Sebastian Knecht. (London: Palgrave Macmillan, 2017), 174.

⁸⁵ Sebastian Knecht, “Exploring Different levels of Stakeholder Activity in International Institutions: Late Bloomers, Regular Visitors, And Overachievers in Arctic Council Working Groups,” 175.

⁸⁶ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 13.

global powers such as China, but also other multilateral institutions.⁸⁷ The German Arctic Policy Guidelines underscore that “for all issues concerning shipping in the Arctic, the IMO (International Maritime Organization) is the foremost body for multilateral cooperation” as is the EU in the area of environmental protection, research, industry, technology, energy and raw materials, transport, and fisheries. The aim is to make Arctic policy part of long-term strategic planning within the EU.”⁸⁸

Germany attended only the first two SAO meetings during the first U.S. chairmanship from 1998 - 2000. During Finland’s and Iceland’s chairmanships that followed the U.S. Chairmanship, Germany attended SAO meetings very irregularly. Its attendance increased when Denmark took over the chairmanship in 2009, and since then, Germany has attended almost every SAO meeting, perhaps because travel to Denmark, followed by Sweden, was more affordable. In 2013 Canada took over the chairmanship, and at this point Germany had published its Policy Guidelines, reflecting a stronger commitment to engagement in Arctic affairs, the AC, and its subsidiary bodies.⁸⁹

In May 2016 Michael Däumer, Former Officer for Baltic Sea Cooperation and Arctic Policy, stated in his Observer report to the AC, that Germany “has contributed continuously and substantially to the work of the Council and its subsidiary bodies for the past 20 years.” This has been done through sharing its expertise in research, science and technology. He noted that Germany participates regularly in the meetings of the Senior Arctic Officials (SAO) and that in 2015, Germany introduced a substitute system to secure continuous attendance in all subsidiary

⁸⁷ Sebastian Knecht, “Exploring Different levels of Stakeholder Activity in International Institutions: Late Bloomers, Regular Visitors, And Overachievers in Arctic Council Working Groups,” 176.

⁸⁸ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 15.

⁸⁹ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 1-2.

bodies of the AC. He also emphasizes Germany's cooperation with Arctic as well as non-Arctic countries in a variety of programs and projects in order to support the aims of the AC. In addition to bilateral scientific cooperation, Germany also supports international cooperation in all fields of Arctic research through the Alfred-Wegener-Institut Helmholtz-Zentrum für Polar- und Meeresforschung (AWI) as the coordinating institution and cooperates with all Arctic Council Member States.⁹⁰

4.5.4. Conclusion

Due to its long polar history Germany became an Observer first in the AEPS and later in the AC during its first Ministerial Meeting. While Germany's participation in the AC meetings and working groups was limited in the early years, it now is seen as an active player regarding Arctic issues. Nevertheless, Germany remains unsatisfied with the limited role it exerts in the AC. As a result, Germany is pursuing multiple other paths to increase its opportunities to influence within the AC, as well as pursuing its interests in the Arctic, outside the forum. Besides Britain, Germany was one of the first Observers to publish Arctic Policy Guidelines, demonstrating a clear interest in the region as well as establishing clear aims and means to pursue them. These guidelines mark the establishment of a coordinated national effort in the northern region.

⁹⁰ Michael Däumer, "Germany Observer Review Report to the Arctic Council." (Berlin, 2016), accessed October 5, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/1874/EDOCS-3635-v1-2016-05-31_Germany_Observer_Review-Report.PDF?sequence=1&isAllowed=y.

Chapter 5 Theoretical Analysis - Neoliberal Institutionalism and Realism

This chapter analyzes the research findings through the theoretical framework Neoliberal Institutionalism, which international relations scholars often use to explain cooperation in international institutions, such as the Arctic Council. Neoliberal institutionalism emphasizes the important role that international institutions play in international relations. Institutions, such as the Arctic Council, provide structures and norms for solving interstate problems, as well as fostering exchange of information. Due to globalization and innovation in technology, the world is more connected than ever, hence creating greater interdependence among states. Institutions try to promote cooperation to resolve global economic and political challenges. Such institutions can reduce uncertainty, lower transaction costs and solve collective action problems. Neoliberal institutionalism theory examines the ways in which institutions serve these ends, and how the benefits of engagement in such institutions serve as incentives to states to participate in them.

Neoliberal institutionalism expects states to establish and engage in institutions if they see themselves as benefitting from cooperation, as neoliberal institutionalism is concerned with the concepts of power and self-interest in the international system. Institutions, rules, and regulations allow for cooperation by decreasing transaction costs and increasing the credibility of state action.¹ This is certainly true for the Arctic Council, an intergovernmental forum that serves as a coordination platform for its Member States, Observers, Permanent Participants, and auxiliary organizations, to advance economic and environmental cooperation. The institution reduces transaction costs by facilitating the exchange of scientific information. Most scientific expeditions are conducted as international expeditions, and research stations in the

¹ Robert O. Keohane, *After Hegemony. Cooperation and Discord in the World Political Economy*. (New Jersey: Princeton University Press, 1984), 51-53.

Arctic tend to be multi-lateral endeavors, as well. Germany, for instance, shares a research station with the French in Svalbard - AWIPEV.²

Neoliberal institutionalism demonstrates that institutions can help resolve problems and promote mutually beneficial outcomes, such as the three separate agreements the AC has signed so far.³ Scholars of neoliberal institutional theory, such as Keohane, Nye, and Morawski, further note that environmental problems cross national boundaries and therefore attract the attention of the whole world, generating cooperation among nation-states for their solution. Neoliberal institutionalism stresses the role of international institutions in overcoming environmental challenges through cooperation. Institutions can produce the framework for environmental cooperation.

The three AC-facilitated agreements illustrate the AC's mandate expansion, a function of the forum's demonstrated effectiveness in fostering cooperation and consensus building. Neoliberal institutionalist theory would point to this mandate expansion as evidence of Member States' and Permanent Participants' recognition of the benefits they gain from engagement in the forum – so much so that they have expanded its institutional capacity. All Arctic Member States and non-Arctic Observer states gain through the participation in the Council, even if in limited ways, especially for the Observers. The AC is expanding to take on economic issues, which neoliberal institutionalists say especially motivates state behavior.

One means through which international institutions, such as the AC, facilitate cooperation is their ability to provide information to states. According to Keohane, international policy

² Alfred-Wegener-Institut, Paul Émile Victor.

³ Agreement on Enhancing International Arctic Scientific Cooperation (2017).

Agreement on Cooperation on Marine Oil Pollution Preparedness and Response in the Arctic (2013).

Agreement on Cooperation on Aeronautical and Maritime Search and Rescue in the Arctic (2011).

coordination and the development of international regimes depend not merely on interests and power but on expectations and information. Therefore, by one measure, a regime is effective if it provides high-quality information to policy makers.⁴ The AC as an intergovernmental forum facilitates exchange of high-quality information, especially through the Working Groups, in which Observers, such as Germany, take part. According to Kathrin Stephen,⁵ the WGs permit the best means for an Observer to assert influence in any AC Arctic project, because AC rules allow Observers' participation (although they cannot vote) in the WGs. The WGs have developed a family-like atmosphere, as members grow to know each other as they interact regularly during WG's meeting.⁶

German Federal Minister for the Environment, Nature Conservation and Nuclear Safety Eva Kracht has noted Germany's input in the AC regarding environmental issues, particularly through increased and intensified participation in numerous WGs addressing environmental affairs: "Germany has submitted preliminary results of a black carbon measurement campaign carried out as part of one of the research projects to the International Maritime Organization. These results may help the IMO in its work to investigate appropriate black carbon measurement and emission control methods for international shipping."⁷ Furthermore, Germany has nominated an expert from the Federal Environment Agency (UBA) to participate in the PAME project on marine litter in the Arctic. These examples illustrate Germany's

⁴ Robert O. Keohane, "The Demand for International Regimes. International Organization." *International Regimes* 36, no. 2 (1982): 346.

⁵ Scientific Project Leader at the Institute for Advanced Sustainability Studies (IASS) and part of the German Observer delegation to the Sustainable Development Working Group (SDWG) of the Arctic Council.

⁶ Telephone Interview with Kathrin Stephen, November 12, 2018. Translated by author.

⁷ Arctic Environment Ministers' Meeting Exploring Common Solutions for the Arctic Environment (Rovaniemi, October, 11-12, 2018). Written statement by Germany Federal Ministry for the Environment, Nature Conservation and Nuclear Safety Eva Kracht, accessed December 18, 2018, https://oaarchive.arctic-council.org/bitstream/handle/11374/2204/EMMFI_2018_ROVANIEMI_Observer-Statement-GERMANY.pdf?sequence=1&isAllowed=y.

profound interest in Arctic environmental protection and in intensifying its cooperation on these issues together with the AC and its numerous WGs.⁸

According to Keohane and Nye, interdependence among states, as well as institutional arrangements, facilitate cooperation through mutually beneficial agreements, even though states might have conflicting or overlapping interests.⁹ This can be seen in the Arctic, where Arctic and non-Arctic states cooperate through the AC, despite certain conflicting interests, for example Russia's policy towards Ukraine. Neoliberal institutionalists argue that states are likely to co-operate if they expect all the countries to have to do so in the future, a scenario that applies to the Arctic Council. In this scenario, states overcome the Prisoner's Dilemma by playing the game multiple times and encouraging states not to cheat. Germany's Arctic Policy Guidelines state that Germany wants to increase its participation in various bodies of the AC, illustrating that it wants to expand its cooperation and extend its Observer state participation rights.¹⁰ Its growing interest can be seen in its increased participation in SAO and WG meetings in recent years, as Knecht's and my own research show. Clearly Germany recognizes benefits from its AC engagement, which results in its desire for increased participation.

Despite the weakness of the Observer role, states seek to become Observers in the Arctic Council to benefit from the economic potential of the Arctic region and to contribute to environmental solutions of global importance. Neoliberal institutionalists argue that the primary goal of states is to make absolute gains, and actors would want to join an international

⁸ Arctic Environment Ministers' Meeting Exploring Common Solutions for the Arctic Environment (Rovaniemi, October 11-12, 2018). Written statement by Germany Federal Ministry for the Environment, Nature Conservation and Nuclear Safety Eva Kracht.

⁹ Robert O. Keohane and Joseph S. Nye, "Power and Interdependence." *International Organization* 41, no. 4 (1987): 727, 732.

¹⁰ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," (Berlin, 2013): 13, accessed July, 2018, https://www.bmel.de/SharedDocs/Downloads/EN/International/Leitlinien-Arktispolitik.pdf?__blob=publicationFile.

institution to “jointly benefit from cooperation.”¹¹ The joint benefit through the AC can clearly be seen in the area of climate research, as only through cooperation, collaboration and joint scientific research this problem can be solved. Germany serves as an example here, as it maintains a joint research station with the French in Svalbard and the Russians in Siberia. Neoliberal institutionalists view economic interests as a potent motivator for state action. Therefore, neoliberal institutional theory suggests that economic interests are one of the driving forces in Germany’s engagement in the Arctic. Germany’s interest in the Arctic clearly includes economic opportunities, as policy documents, such as the German Arctic Guidelines and Observer reports demonstrate. Germany’s participation as an Observer in the AC can only indirectly secure its absolute economic gains, as the AC is only an intergovernmental forum, which cannot issue any binding treaties and therefore is not the right forum to secure free access to resources or shipping lanes. From an economic point of view, Germany is also interested in selling its state-of-the-art technology and know-how, but German representatives in the AC are diplomats and scientific experts, not businessmen. Therefore, the AC serves as a forum to make contacts with other countries and to maintain good relationships with other state actors.

As a result, the analysis of Germany’s expectations reveals two primary interests: On the one hand Germany seeks access to Arctic resources, which hold great economic potential for German industry. On the other hand, Germany prioritizes environmental protection and safeguarding the Arctic environment. The German Arctic Policy Guidelines note “the great potential for the economies of Germany that Arctic resources hold.” The German economy is already closely intertwined with the Arctic regions of Norway and Russia. Germany has a fast-growing economy and depends on Arctic resources. Consequently, Germany must cooperate with states such as Norway and Russia to ensure access to oil and gas. Demand for energy is

¹¹ Robert O. Keohane and Lisa L. Martin, “The Promise of Institutional Theory: Response to John Mearsheimer,” *International Security* 20, no. 1 (1995): 42.

likely to grow with Germany's decision to phase out nuclear energy and replace it to a large extent with renewables. One example of Germany's expertise in the region regarding resources is Siemens, which is renowned for its contributions to subsea installations that have made offshore resources accessible. Subsea processing allows for oil and gas recovery in deep and ultra-deep waters while using a more cost-efficient method.¹²

Germany's commercial interests in the Arctic do not comprise its sole incentive for AC participation. Despite neoliberal institutionalists' contention that absolute economic gains, based on rational self-interested behavior, tend to be the primary motivation for international cooperation, evidence suggests that economic gain is not Germany's sole or perhaps even its foremost interest in participating in the AC. The dual interests likely owe to the AC's mandate, which primarily focuses on environmental protection including climate change, sustainable development and scientific research. The AC does not offer robust opportunities for advancing one's own commercial interests.

Neoliberal institutionalism assumes that Observers like Germany can be influential in the Council, especially if they can provide convincing information and ideas to states. Today Germany enjoys a strong reputation in Arctic affairs, partially due to the AWI's (Alfred-Wegener-Institut Helmholtz-Zentrum für Polar-und Meeresforschung) being one of the world's leading polar research institutes. The AWI has led and still leads several important research operations in the Arctic. The most prominent example is the MOSAicC (Multidisciplinary drifting Observatory for the Study of Arctic Climate) project, the largest central Arctic expedition ever, under the leadership of the AWI, using the German icebreaker *Polarstern*, with seventeen other countries involved.

¹² Siemens, "Enabling Subsea Processing," Siemens Global Website, accessed December 18, 2018, <https://w3.siemens.com/markets/global/en/oil-gas/pages/subsea.aspx>.

Neoliberal institutionalism would explain why states seek to become Observers in the Council to gain influence over the economic development of the region. The Arctic member states accept new Observers when they anticipate the prospective Observer's participation will improve economic conditions in the Arctic region by providing economic opportunities. Germany makes its case for this assumption in its Policy Guidelines, which state that Germany "can contribute to sustainable economic development in this region."¹³ Germany sees itself and presents itself as an industrial country with state-of-the-art technology, especially in the field of shipbuilding.

Kathrin Stephen states that Arctic resources represent only one of Germany's economic interests in the region. Shipping represents another focus within Germany's economic interests, although it remains questionable when or how soon the Arctic sea lanes will be navigable. Germany also has a vast interest in scientific research, which promises myriad positive benefits. Science, in fact, is the "ticket" to the Arctic, Kathrin Stephen claims. Member states leave other actors few options to influence governance in the Arctic. Climate change, however, is a global issue that requires cooperation and collaboration in order to address the challenges.¹⁴ Another government official I interviewed confirmed Stephen's statement, that access to resources was not the primary reason that Germany sought AC observer status, as the Arctic Eight own the resources.¹⁵

Since the end of the Cold War, Germany has assumed a more active international role fostered by an increase in self-confidence and self-expectations. Especially the role of the German military changed significantly and lastingly after the Cold War ended. For the first time since

¹³ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 1.

¹⁴ Telephone Interview with Kathrin Stephen, November 12, 2018. Translated by author.

¹⁵ Telephone Interview with Government Official November 7, 2018. Translated by author.

the close of World War II, Germany was involved in military actions and flew the first combat mission as part of the NATO operations in Bosnia.¹⁶ In the last two decades Germany accepted greater international responsibility in accordance with its economic strength and with being less restricted in international affairs due to its military past.

Since the reunification, German foreign policy has intensified in the area of international engagement, focusing on transatlantic relations (including the North Atlantic Treaty Organization - NATO), European integration and its engagement within the United Nations (UN).¹⁷ Hanns Maul, a German political scientist, describes the core elements of this newly identified role in foreign politics through reinforcement of international law: 1) Germany's attachment to multilateral principles and cooperation, in particular Germany's support for the European Union; 2) German decision-makers' priority of establishing Germany as a reliable and trustworthy partner to the West; and 3) a deeply held skepticism of power politics and the use of military force.¹⁸ The basis of Germany's successful foreign policies relies on old and enduring German qualities such as predictability, reliability and confidence in German foreign policy. These qualities led to the German pillars of foreign policy, as described by the German foreign office: "Europe, transatlantic partnerships, fostering peace and security around the world, the promotion of democracy and human rights, and commitment to fair and sustainable globalization and rules-based international order."¹⁹

Regarding the theory of neoliberal institutionalism, Germany has increased its international involvement and cooperation, while also pursuing an egoistic and self-regarding foreign policy

¹⁶ Hanns W. Maull, "Deutsche Außenpolitik: Orientierungslos," *Zeitschrift für Politikwissenschaft* 21, no. 1 (2011): 100.

¹⁷ Hanns W. Maull, "Deutsche Außenpolitik: Orientierungslos," 102.

¹⁸ Hanns W. Maull, "Deutsche Außenpolitik: Orientierungslos," 119.

¹⁹ Federal Foreign Office, "Germany's foreign and European policy principles." (Berlin, 2017), accessed December 18, 2018, <https://www.auswaertiges-amt.de/en/aussenpolitik/themen/-/229790>.

that places greater emphasis on domestic political interests. This approach has allowed Germany to take over leadership roles in international politics, such as the leadership role within the European Union (EU), the negotiations over the Iranian nuclear program, and the Ukraine crisis.²⁰ Germany asserts itself both to pursue domestic and regional interests, while also willingly taking on responsibility for greater international good.

While neoliberals favor international organizations and regimes for cooperation, from which all participants gain, realists on the other hand favor a view that explains state behavior as tense, uncertain, distrustful, and uncooperative. Survival and a focus on military power motivate these actors. Oyvind Osterud and Geir Honneland²¹ argue that there is a new power game in the Arctic, with western disagreement about questions of jurisdiction, and competing interests in transport routes and resources, which could potentially lead to rivalry between the Arctic states.²² As there is no guarantee that the Arctic region will remain peaceful, realism can still be a useful explanatory model to understand state behavior in the Arctic, especially in issues of security dynamics. Therefore, I want to know how Germany defines its security and self-interests. Meanwhile, today there is little or no conflict in the Arctic. On the contrary, the Arctic has been a stable region for decades; states have increased their cooperative efforts and most sovereignty claims have been settled.

According to realism, national security and state survival are clear interests in the Arctic. According to realists, conflicts in the Arctic arise as a consequence of different interests, which will become more evident in the future due to the melting of sea ice. In this case, realists assume

²⁰ Klaus Brummer and Kai Oppermann, "Germany's Foreign Policy after the End of the Cold War: Becoming Normal?" Oxford Handbooks Online / Scholarly research reviews: Oxford University Press (2016): 2.

²¹ Oyvind Østerud is a Professor at the department of Political Science at the University of Oslo, Norway. Geir Hønneland is a research Director at the Fridtjof Nansen Institute in Norway.

²² Oyvind Osterud and Geir Honneland, "Geopolitics and International Governance in the Arctic," *Arctic Review on Law and Politics* 5, no. 2 (2014): 161.

that existing institutions, such as the UN or the AC, will fail to provide a strong authority that gives clear guidance. Therefore, these institutions will fail to prevent the outbreak of an armed conflict because the anarchic system allows states to act upon their own will. Realists further argue that if non-member-state actors, such as Germany and China, continue to increase their interest and activities in the region and want to enhance participation in Arctic issues, this will likely lead to more strained relations in the region. With resources gradually decreasing in the future, realists believe in a possible race for resources, resulting in conflict, and increased military activity in the region.

Although scientists predict a shortage of resources in the future, most agree that all actors dealing in the Arctic try to avoid competition for resources or a “race for resources” by all means, as it could have destructive and irreversible consequences. Most of the findings of new resources lie in areas where national jurisdiction is undisputed. There have been hardly any signs of political conflict in the Arctic, and therefore it can be assumed that cooperation will be the primary choice of the Arctic states. The AC does not address any security related issues, as its mandate includes issues of sustainable development and environmental protection in the Arctic, while explicitly excluding security issues. Most Arctic states comply with the UNCLOS (United Nations Convention on the Law of the Sea) to deal with sovereignty issues, which is one explanation why political tension in the North is low. Therefore, there is good reason to believe that states will continue to cooperate. Germany states in its Arctic Policy Guidelines that it “remains committed to international and regional conventions, ..., which form the legally-binding framework for states’ rights and obligations with respect to the Arctic.”²³

²³ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 1.

Germany maintains good relationships with other Arctic states. In 2013, for example, German Chancellor Angela Merkel traveled to Oslo to meet with Prime Minister Jens Stoltenberg to discuss energy issues, including cooperation in the Arctic.²⁴

Today, cooperation in the Arctic is displayed through state reliance on international law, such as UNCLOS, multilateral cooperation, and bilateral treaties, many of which deal with environmental protection and cooperative research. Therefore, it can be stated that since the end of the Cold War, Arctic governance has evolved towards cooperation where all stakeholders agree that the environment needs to be protected, and this can only be achieved through cooperation and joint scientific research.

Realists promote military power in order to survive, as cooperation is difficult to achieve, especially when stakes are high. Germany has a horrific military history. It initiated two world wars, and since then has had to deal with its military past. Since the Treaty on the Final Settlement with Respect to Germany of 1990, also called the Two Plus Four Agreement, the FRG, FDR, and the four countries which occupied Germany at the end of the war (France, Soviet Union, United Kingdom and the United States) renounced all rights they held in Germany, finally allowing a united Germany to become fully sovereign. Germany agreed to reduce the strength of its combined armed forces to no more than 370,000 men. As British journalist Julian Borger wrote in 2012, “Germany has gone from a special case to a normal military. It used to be an outlier.”²⁵ Germany is burdened by its military past, and the genocidal legacy of National Socialism, and is therefore very unlikely to encourage or engage in any armed conflict in the Arctic region. Although Germany has slowly returned to participate in

²⁴ Mia Bennett, “Norway and Germany discuss Arctic energy cooperation,” February 22, 2013, accessed January 12, 2019, <https://foreignpolicyblogs.com/2013/02/22/norway-and-germany-discuss-arctic-energy-cooperation>.

²⁵ Julian Borger, “Germany slowly comes to terms with sending its armed forces abroad,” *The Guardian*, September 18, 2012, accessed January 12, 2019, <https://www.theguardian.com/world/2012/sep/18/germany-military-modernise-foreign-intervention>.

offensive conflict since the NATO war in former Yugoslavia in 1999, military operations still have a bitter taste among the general public.

In recent decades Germany has promoted cooperation in the world and in the Arctic. Especially in the field of environmental protection Germany has been a leader since global warming became a global issue. In the Arctic Policy Guidelines Germany promotes the Arctic as an area of peace, stating that NATO is the wide-ranging partnership providing a suitable forum for dealing with Arctic security policy issues.²⁶

Although Germany's Arctic Policy Guidelines recognize that "security issues do arise in conjunction with developments in the Arctic, and that possible security risks need to be addressed,"²⁷ the government favors cooperation throughout the policy document. The Policy Guidelines state, "the Federal Government favors multilateral cooperation on Arctic issues, first and foremost in the Arctic Council, which is the highest-ranking decision-making body for the Arctic."²⁸ Furthermore, the German Government is committed to ensuring that the Arctic (like Antarctica) is used for peaceful purposes only.

As the future of the Arctic region remains uncertain, there is an unlikely possibility of future conflict in the region. For the last decades, the Arctic region has been a region of cooperation. The same is true for Germany's behavior in the Arctic and as an Observer in the AC. Therefore, the theory of neoliberal institutionalism, a theory that focuses on cooperation, best explains

²⁶ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 17.

²⁷ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 17.

²⁸ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 2.

Germany's behavior in the region. The theory of realism, which emphasizes conflict and security, does not explain Germany's behavior in the Arctic.

Chapter 6 Summary and Conclusion

For centuries, Germany has demonstrated its interest in the Arctic, beginning with exploration in the context of whaling. The century of whaling represented primarily the pursuit of economic aims, and it can be considered a successful era for German polar expeditions, as Germans benefited from whaling through an increase in employment. Due to significant competition with other great seafaring nations, cooperation at this stage was not common. Although scientific research was conducted during the whaling period, by Friedrich Martens for example, scientific research was just beginning in the region. The period following the whaling era, from the middle of the eighteenth century until WWII, was characterized by expeditions in the search of fame, geographical discovery, scientific political gain. Most German expeditions returned with these hopes unfulfilled achievements and. Karl Koldewey stands out as one of the most famous early German Arctic explorers. His two early Arctic expeditions returned with great quantities of scientific data, but served more as character formation and to develop first Arctic experiences. Alfred Wegener, Germany's most famous Arctic explorer, gained his first Arctic experience as a member of a Danish expedition led by Luvig-Mylius-Erichsen. During his own expeditions, Wegener cooperated with other foreign expedition members, such as the Greenlandic Inuit Rasmus Villumsen. Wegener not only came home with scientific data, but proved that Germans could compete in scientific discovery on an international level. Notably, he displayed Germany's technological achievement by using propeller-driven sleds for the first time in the Arctic region. Although this innovation failed, he brought attention to Germany's scientific and technological capacities in Arctic exploration.

The founding of the International Polar Year (IPY) in the 1870s comprises Germany's most lasting achievement in Arctic cooperation. Weyprecht recognized the enormous size of the Arctic region and realized that only a series of Arctic stations operated by scientists from

multiple nations could accomplish the immense task of exploring, monitoring and recording a variety of phenomena of interest to the scientific world. Therefore, Weyprecht and Neymayer suggested that multiple nations conduct scientific research in several simultaneous expeditions around the North. While the first IPY only brought back a series of individual scientific data and there was no summarizing publication afterwards, this marked a first important step towards cooperation in the Arctic. The first IPY represented a shift in polar science from individual research towards collaboration, data exchange, and mutual assistance. For the first time, polar research proved to be a field of international cooperation.

The Arctic expedition of the *Zeppelin* is one of the most successful German expeditions to the North, brought home numerous scientific achievements with little financial support and no threats to life. This German-led international expedition pioneered the use of complex aerial photography techniques and equipment. Scientists from Germany, the United States, the Soviet Union and Sweden participated. Hugo Eckener commanded the flight, while the Russian Professor Rudolf Lazarevich Smolovich served as the expedition's scientific leader. Cooperation with Russia enabled the exchange of mail in the Arctic. In another breakthrough, Walther Brun founded *Aeroarctic* to examine the possibility of airship traffic route over the Atlantic. *Aeroarctic* was an international organization based on cooperation with scientists and engineers from all over the world.

After WWI Germany was eager to regain its status in the world following the disaster of the war and the Treaty of Versailles. The achievements of Wegener's expeditions allowed Germany to reassert itself as a leader in polar exploration, in terms of science, and technological advancement. After the WWII, the new democratic Germany had to reestablish its footing in the new world order. It recognized the benefits of international cooperation and collaboration, as illustrated in its leadership role in multiple international regimes, including the EU and the

United Nations, where Germany was elected as a non-permanent member of the Security Council for the 2019-20 term.

Eventually, Germany developed a role in international Arctic politics, a role that emphasized economic cooperation, exploration and scientific collaboration as well as diplomacy. Furthermore, Germany became an international leader in the fight against climate change. The German government worked hard to ensure that the international community negotiated new climate agreements and has provided essential impetus for the Kyoto II or the Paris Agreement.²⁹ The Federal Government is aware of Germany's role and responsibility regarding global warming. With the German Sustainability Strategy and the Climate Protection Plan 2050, it is orienting itself towards the goal of greenhouse gas neutrality by the middle of the century and is developing concrete models for the specific fields of action for the year 2050.³⁰

6.1. Germany's Arctic Council Observer Role

After the Cold War ended, Arctic politics changed dramatically, as communication opened up and East-West tensions waned. This period is characterized by the establishment of multiple circumpolar international cooperative agreements, regimes, and institutions to address various issues confronting the North. Several events contributed to a paradigm shift in the Arctic. Gorbachev's famous 1987 Murmansk speech set in motion the diplomatic activities, resulting in first steps of political cooperation. Other circumstances, such as the nuclear power plant

²⁹ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, "Klimaschutzbericht 2018 zum Aktionsprogramm Klimaschutz 2020 der Bundesregierung/Climate Protection Report 2018 on the Federal Government's Climate Protection 2020 Action Programme." (Berlin, 2018): 27, 63, accessed December, 18, 2018,

https://www.bmu.de/fileadmin/Daten_BMU/Download_PDF/Klimaschutz/klimaschutzbericht_2018.pdf.

³⁰ Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, "Klimaschutzbericht 2018 zum Aktionsprogramm Klimaschutz 2020 der Bundesregierung/Climate Protection Report 2018 on the Federal Government's Climate Protection 2020 Action Programme," 10.

accident in Chernobyl in 1986, the 1989 Exxon Valdez oil spill in Alaska, and severe environmental damage in Finland from the smelters on the Kola Peninsula, increased the need for research on the Arctic environment.³¹ The fall of the Soviet Union, finally opened up Arctic research cooperation in the vast terrestrial and maritime regions of the former Soviet Arctic to Western scientists for the first time since the beginning of the century. From 1998 until 2013 Germany, for example, maintained a research station with Russia in the Siberian tundra.³²

One major step towards Arctic cooperation took place in an attempt to manage common environmental problems, such as persistent organic pollutants, through the foundation of the Arctic Environmental Protection Strategy (AEPS). With Finland taking the lead, the eight Arctic states signed the AEPS, which created a more comprehensive political structure for collaboration around transboundary environmental issues. Economic, scientific, and strategic interests, as well as national pride, drove Germany's historical presence in the Arctic. When the new cooperation structures began to emerge in the region with the decline of the Cold War, Germany was among the first non- Arctic actors to join in, owing to its history of exploration and research in the Arctic. External actors conducting sound research in the Arctic could provide environmental cooperation institutions with valuable data.³³ Therefore, Germany, Poland, the Netherlands, and Great Britain, were invited as observers, first to the AEPS and soon thereafter to the Arctic Council. Kathrin Stephen explains that this new Arctic institution offered Germany an opportunity to escape rigid Cold War constraints. It allowed peaceful cooperation in a field that did not threaten anyone, the field of environmental protection and

³¹ Annika E. Nilsson, "A changing Arctic Climate. Science and Policy in the Arctic Climate Impact Assessment." (PhD diss., Linköping University, 2007), 83.

³² Alfred-Wegener-Institut, "Research Station Samoylov Island," accessed November 5, 2018, <https://www.awi.de/en/expedition/stations/island-samoylov.html>.

³³ Hakon R. Nilson, "Arctic Environmental Protection Strategy (AEPS): Process and organization. 1991-97. An assessment." *Rapportserie*, no. 103 (1997): 32.

science. Germany could participate in a low-stakes endeavor that offered great possibilities for expansion and furtherance of peace in the Arctic.³⁴

Germany has thus been an Observer in the Arctic Council from its inception. Initially Germany's participation in ministerial meetings and Working Groups was rather low. Germany's interest and participation in AC meetings increased significantly after more Observers, including China, joined the AC in 2013. In 2013 Germany published its Arctic Policy Guidelines, illustrating its having developed a stronger sense of mission in its Arctic engagement. Germany has not yet appointed an Arctic Ambassador, as some other non-Arctic Observers have, but since 2017 it maintains an Arctic Office. In its Arctic Policy Guidelines Germany states that it favors multilateral cooperation on Arctic issues, first and foremost in the Arctic Council. The Federal Government further emphasizes that it aims to strengthen Germany's Observer status in the Arctic Council.³⁵

Germany points out that it is committed to doing its share as an Observer country; it wants to take responsibility, to use and share its expertise.³⁶ Kathrin Stephen explains that Germany's objectives in participating in the AC stem from its long polar history and notes that its interests are manifold. These include shipping, technology transfer, and climate change concerns, as well as economic interests. Germany sees opportunities in the Arctic, which are not particularly concrete and detailed, although German industries engage quite actively in the Arctic. In general, Stephen explains, it is important for Germany to have a "foot in the door." One major

³⁴ Telephone Interview with Kathrin Stephen, November 12, 2018. Translated by author.

³⁵ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 2.

³⁶ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 13.

goal is responsibility in the field of climate change, not necessarily as the leading nation, but to contribute.³⁷

Germany uses its AC Observer status to further its interests in the region. It aims to remain a respected world leader on various fronts, such as climate change mitigation and other scientific research. It goes a step further than other countries by trying to push AC member states to raise their standards. For instance, former German foreign minister Westerwelle has reminded the Arctic states that “sovereignty means commitment” and urged the AC to “become a guardian of the environment.”³⁸ The same is true for the Germany Arctic Policy Guidelines. The document does not correspond clearly to the Nuuk rules for the AC observers in that it contains many concrete proposals and references that might please some Arctic states, but not all of them.³⁹ For example, Germany disagrees with the Canadian position regarding the Northwest Passage (NWP), as Canada considers the NWP to be internal waters, while Germany argues that these waters constitute an international strait. Taking this controversial position in its policy guidelines illustrates Germany’s tendency to stretch the Nuuk guidelines for Arctic Council Observers in pursuit of its own interests.

Kundani argues that Germany is increasingly using its influence to impose its own economic preferences on others within the European Union.⁴⁰ The same might be true for the AC, where Germany uses its reputation as a global and scientific leader to influence others, as seen in Westerwelle’s comments.

³⁷ Telephone Interview with Kathrin Stephen, November 12, 2018. Translated by author.

³⁸ Guido Westerwelle, “Climate Change, International Law and Arctic Research – Legal Aspects of Marine Research in the Arctic Ocean,” in *Arctic Science, International Law and Climate Change. Beiträge zum ausländischen öffentlichen Recht und Völkerrecht* 235, ed. Rainer S. Wasum-Rainer, I. Winkelmann, and K. Tiroch (Heidelberg, Berlin: Springer, 2012). Translated by author.

³⁹ Małgorzata Śmieszek and Paula Kankaanpää, “Observer States’ Commitments to the Arctic Council: The Arctic Policy Documents of the United Kingdom and Germany as Case Study,” *Yearbook of Polar Law* (2015): 393, 395.

⁴⁰ Hans Kundani, “Germany as a Geo-Economic Power,” *The Washington Quarterly* 34, no. 3 (2011): 37.

6.2. Germany's contemporary interests in the Arctic

The challenges and opportunities the Arctic now faces exemplify the complexity and interdependence of twenty-first century global politics. Climate change is likely to increase in the coming years; as a result, the interdependencies between environmental conditions and public policy will increase as well. Furthermore, a shift in balance of power and an increased interest in the Arctic region might have the potential for a more challenging situation in the North. Finally, growing interdependence between the Arctic and global affairs might also make the region more vulnerable to spill-over effects of political and security-related conflicts in other parts of the world.⁴¹ For the time being, however, the Arctic remains a zone of peace, where cooperation prevails.

As a resource poor country, Germany has always been interested in a stable and secure supply of natural resources, mainly oil and gas from Russia and Norway. Germany also expects metals found in the Arctic such as copper, nickel and zinc and rare earth metals to cover the raw material requirements of its domestic industries, such as high-technology products. In return, Germany offers the Arctic states the technology and know-how needed for the regional development of raw materials and for research.

These circumstances place Germany in a vulnerable and dependent position. As Germany is an exporting nation, it has strong interests in the development of mineral and energy resources, as well as free shipping in the Arctic. Therefore, Germany benefits from globalization and a functioning international political order, including access to international trade routes and raw materials. Conversely, Germany, in economic and political terms, depends on the functioning

⁴¹ Tobias Etzold and Stefan Steinicke, "Regionale Sicherheit und Zusammenarbeit in der Arktis- und Ostseeregion," *Stiftung Wissenschaft und Politik* (Berlin, 2015): 161.

of this order and is thus vulnerable to disturbances in the international political order. Hence, Germany wants to preserve and further develop this international political order to benefit economically and politically.⁴² Recent stresses on the international political order include a shifting balance of power in the post-Cold War era, climate change, migration flows, and increasing competition for scarce resources, food and access to trade routes and technologies. Germany is particularly vulnerable to these developments.⁴³

According to Steinicke, Germany's interest in the region and its Arctic engagement have not been driven by an interest in the region itself, but instead by international and domestic developments, including the need for a peaceful international order and Germany's domestic economic needs, which highlight Germany's vulnerability. He concludes that these geo-economic threats, rather than commitment to environmental responsibility, drive Germany's Arctic engagement.⁴⁴

Yet, the German Arctic Policy Guidelines emphasize the importance "of protecting the Arctic environment through circumspect and precautionary action."⁴⁵ Although Germany is interested in Arctic resources, it also emphasizes global environmental protection through the highest environmental standards. Furthermore, Germany stresses that "safeguarding the unique environment and living conditions of the Arctic, and protecting the region's biodiversity, are of

⁴² Stiftung Wissenschaft und Politik (SWP), and German Marshall Fund of the United States (GMF), "Neue Macht Neue Verantwortung. Elemente einer deutschen Aussen- und Sicherheitspolitik für eine Welt im Umbruch" (Berlin and Washington: Stiftung Wissenschaft und Politik und The German Marshall Fund of the United States, 2013): 6, accessed December 15, 2018, <https://www.swp-berlin.org/publikation/neue-macht-neue-verantwortung-neue-aussenpolitik/>.

⁴³ Stiftung Wissenschaft und Politik (SWP), and German Marshall Fund of the United States (GMF), "Neue Macht Neue Verantwortung. Elemente einer deutschen Aussen- und Sicherheitspolitik für eine Welt im Umbruch," 12.

⁴⁴ Stefan Steinicke, "Germany's Arctic Engagement - Between Environmental Responsibilities and Geo-Economic Interests" (PhD diss., Universität der Bundeswehr, 2017), 306.

⁴⁵ Federal Foreign Office, "Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities," 1.

the highest priority.”⁴⁶ As a non-Arctic country, Germany assumes responsibility and makes concrete contributions to environmental and climate protection in the Arctic, primarily through the participation of experts and scientific institutions in relevant working groups of the Arctic Council, for example the AMAP or PAME WGs. During the 12th Arctic Dialogue, which took place in November 2018 in Berlin, Federal Environment Ministry, Federal Environment Agency, Federal Agency for Nature Conservation and AWI experts addressed audiences on their contributions to climate protection in the Arctic, to limit marine waste and to protect biodiversity in the Arctic.⁴⁷ Examples of this commitment include collaboration in a study by the AC’s PAME Working Group on Marine Waste and Microplastic in the Arctic and efforts under OSPAR⁴⁸ to establish a marine protected area in the high seas of the Arctic Ocean.⁴⁹

Already today, climate change impacts have reached Germany in the form of rising temperatures and extreme weather such as storms and draughts. Germany therefore is highly interested in research regarding climate change and in mitigating the effects of the change. Furthermore, Germany sees great potential for national companies – especially in the environmental sector and marine technology. Germany is a global leader in the fight against climate change and therefore promotes binding regulations for environmental protection and Arctic security through bilateral agreements. Germany offers its scientific expertise and experience in polar research to support the peaceful and sustainable development of Arctic resources.

⁴⁶ Federal Foreign Office, “Guidelines of the German Arctic Policy. Assume responsibility, seize opportunities,” 7.

⁴⁷ Arctic Office, “12th Arctic Dialog. Environmental protection in the Arctic,” accessed December 18, 2018, <https://www.arctic-office.de/en/information-platform/news/arctic-dialogue-addressing-environmental-issues/>.

⁴⁸ Convention for the Protection of the Marine Environment of the North-East Atlantic

⁴⁹ Arctic Office, “12th Arctic Dialog. Environmental protection in the Arctic.”

In summary, Germany's recent Arctic engagement started with an emphasis on mitigating climate change and has shifted to include pursuit of geo-economic opportunities. In recent years, Germany became vulnerable to the effects of global warming and energy shortages. Therefore, Germany depends on the Arctic: on a reliable energy supply, stable markets, and free access to shipping routes, as well as to the Arctic climate, which drives the global climate. My findings thus support a neoliberal institutionalist explanation of Germany's participation as an Observer of the Arctic Council. Scientific research is a high priority for Germany and a means to participate in the Arctic. Germany stands as an environmental leader, and the German polar research institute AWI enjoys the reputation of being one of the world's leading polar research institutes. Germany has anticipated absolute economic gains, as well as indirect benefits from collaboration to protect the Arctic environment and to engage in scientific research. Germany pursues self-interests in the Arctic, as well as environmental protection, both of which coincide with the theory of neoliberal institutionalism. As neoliberal institutionalists argue, Germany is motivated by economic gains to engage in Arctic affairs. Furthermore, through the AC, Germany participates in numerous projects and WGs of the AC, and therefore supports the fight against climate change. In short, Germany pursues AC Observer status to collaborate with others to further its domestic economic goals, as well as environmental and research interests. Therefore, my findings and analysis regarding Germany's engagement and behavior in the Arctic and the AC clearly align with neoliberal institutionalism.

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